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ABSTRACT

With the release of "Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention" in 1979, the Public Health Service launched a decade-long initiative to reduce preventable death and disease in all age groups in the population by 1990. The 226 health objectives, issued in 1980, addressed measures to improve health status and reduce risks to health across 15 areas of mortality, morbidity, preventive interventions, and health-related behaviors. This report provides a status report on each of the 226 objectives, a commentary on that status, and a brief assessment of what will be needed to reach the 1990 target successfully. The report is in three sections: preventive services, health protection, and health promotion. (JD)

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A RESOURSE REVIEW

SP 030 425

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The 1990 Health Objectives for the Nation: A MIDCOURSE REVIEW

Public Health Service
U.S. Department of Health and Human Services

Office of Disease Prevention and Health Promotion
November 1986

FOREWORD

At the dawn of this decade, the United States set new national goals for measurable gains by the year 1990 in the health of people throughout the land. This report, *The 1990 Health Objectives for the Nation: A Midcourse Review*, indicates substantial progress toward those goals. Our targets sought reduction of preventable disease and disability for people at each of the five major life stages—infants, children, adolescents, adults, and older adults. And they went beyond broad mortality-based goals, to target specific improvements in 15 priority areas. Over the last few years, we have put special emphasis on implementing and tracking progress toward accomplishment of these goals and objectives.

We have just passed the midpoint of the decade, and our midcourse review shows that we are well on the way to achieving nearly half of our 226 objectives. Only about one-quarter appear unlikely to be achieved by 1990, and in only eight cases is the trend actually away from our 1990 targets. These are gratifying figures; but they are also challenging. They constitute a call for renewed effort and commitment toward our common national aspiration of good health for all Americans. This report—and its challenges—should be an important resource for participants at every level of the national effort to enhance the health of Americans.

Otis R. Bowen, M.D.
Secretary

PREFACE

With the release of *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention*, the Public Health Service launched an unprecedented decade-long initiative in the United States. Published in 1979, this report served as a standard-bearer for the Nation, calling professionals and lay people alike to use available knowledge and skills to undertake a venture that promised to reduce preventable death and disease in all age groups in our population by 1990. The 226 health objectives, issued in 1980, were the initial response to that challenge, setting a course toward the target year 1990 and addressing measures to improve health status and reduce risks to health across 15 areas of mortality, morbidity, preventive interventions, and health-related behaviors.

Now, having passed the midpoint of the decade, we are in a position to take our bearings, to assess our progress to date, and to consider necessary midcourse corrections. This report documents the process of doing just that. It provides a status report on each of the 226 objectives, a commentary on that status, and a brief assessment of what will be needed to reach the 1990 target successfully. It provides much cause for pride, that we have done so well, and some cause for serious concern, that we are not on course in certain very important areas.

Overall, several trends are notable. We can be extremely pleased at the high level of public awareness about lifestyle factors and their contribution to health. As people become better informed about risks of smoking, poor nutritional habits and being overweight, misuse of alcohol and drugs, and inattention to injury-preventing safety measures, personal choices to act on that knowledge are possible, and resulting reductions in related mortality and morbidity will follow. Already we have begun to see such results from reductions in smoking, per capita alcohol consumption, and use of automobile seat belts. Already we have noted reduced death rates from strokes, cirrhosis, and traffic accidents. On the other hand, knowledge has not yet preceded healthier behavior in arenas such as weight control, illicit drug use, and control of violent behavior. While we can take a measure of satisfaction in the success of childhood immunization programs and resulting reductions in the incidence of some infectious diseases, we must face up to problems in improving pregnancy outcomes, dealing with the seemingly intractable problem of teenage pregnancy, and controlling sexually transmitted diseases.

This midcourse review provides the details to back up such findings. In itself, by serving as a process that allows such a comprehensive look at our preventive health efforts as a Nation, it proves the value of the whole 1990 Health Objectives process. I commend its findings to you and ask you to commit your own talents to the effort to achieve a healthier America by the year 1990.

Robert E. Windom, M.D.
Assistant Secretary for Health

ACKNOWLEDGEMENTS

The 1990 Health Objectives for the Nation: A Midcourse Review results from the thoughtful contributions of many professionals, both inside the U.S. Public Health Service (PHS) and from private agencies and institutions. Coordination for review of each of the 15 priority areas was the responsibility of the assigned lead agency within PHS. The following persons served as priority area/lead agency coordinators:

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Sexually Transmitted Diseases	Willard Cates, Jr., M.D.
Toxic Agent and Radiation Control	Elizabeth Hudson
Occupational Safety and Health	J. Donald Millar, M.D.
Accident Prevention and Injury Control	Stuart T. Brown, M.D.
Fluoridation and Dental Health	Stephen B. Corbin, D.D.S.
Surveillance and Control of Infectious Diseases	Walter R. Dowdle, Ph.D.
Smoking Control	John Bagrosky
Improved Nutrition	Marilyn Stephenson, Ph.D.
Physical Fitness and Exercise	Krystyn B. Spain
Alcohol and Drug Misuse	Mel Segal
Control of Stress and Violent Behavior	Lindsley Williams

In addition to the coordinators for individual priority areas, invaluable assistance in agency coordination was provided by John T. Kalberer, Ph.D., National Institutes of Health, Martha Katz, Centers for Disease Control, and Morton Silverman, M.D., Alcohol, Drug Abuse, and Mental Health Administration. Careful support in verifying statistical data was provided by Ronald Wilson, Patricia Golden, and Laura Montgomery of the National Center for Health Statistics.

Staff of the Office of Disease Prevention and Health Promotion served as the compilers and editors of the midcourse review submissions of the lead agencies. James A. Harrell, Penelope Pollard, Robert Gold, Ph.D., Dr. P.H., and Susan Gilbert were principally responsible for this task. Secretarial and proof-reading assistance was provided by Patricia Jones, Loretta Logan, Martha Frazier, and Marilyn Schulenberg. Overall direction for this effort was the responsibility of J. Michael McGinnis, M.D., Deputy Assistant Secretary for Health (Disease Prevention and Health Promotion).

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ADAMHA — Alcohol, Drug Abuse, and Mental Health Administration
CDC — Centers for Disease Control
DHHS — Department of Health and Human Services
FDA — Food and Drug Administration
NCHS — National Center for Health Statistics
NHANES — National Health and Nutrition Examination Survey
NHIS — National Health Information Survey
NIAAA — National Institute on Alcohol Abuse and Alcoholism
NIDA — National Institute on Drug Abuse
NIH — National Institutes of Health
NIMH — National Institute of Mental Health
PHS -- Public Health Service
USDA — United States Department of Agriculture

INTRODUCTION: THE ORIGIN OF THE 1990 OBJECTIVES

Throughout 1985 the U.S. Public Health Service conducted a review of the progress achieved thus far toward the 226 disease prevention and health promotion objectives for the year 1990 that had been adopted in 1980. The results of this review provide cause for optimism about the health of the Nation. In areas such as high blood pressure control, prevention of unintentional injuries, smoking reduction, immunization, infectious diseases, alcohol and drug misuse, occupational safety and health, and dental health, many of the objectives have either been met or are likely to be met by 1990 if present trends can be maintained. Others—in areas such as pregnancy and infant health, family planning, nutrition, fitness and exercise, and violent behavior—pose continuing challenges and considerable potential rewards in terms of improved health if negative trends can be reversed. Of the initial 226 objectives, only 60 appear unlikely to be achieved based on trends established during the first half of the decade, and only eight are moving in the opposite direction from the 1990 target.

This midcourse review of the Nation's 1990 Health Objectives is meant to provide health policy makers and health providers, as well as interested citizens, with an assessment of just how the Nation is doing in its decade-long strategy to improve health status and reduce health risks. Periodically, the U.S. public health community has been charged with assessing the health of Americans. Such reviews date back to the work in New England of the Reverend Edward Wigglesworth in 1789, who provided the first American mortality tables, and to Lemuel Shattuck's *Report of a General Plan for the Promotion of Public and Personal Health* presented to the Massachusetts Legislature in 1850.[1] The most recent, and most comprehensive of these reviews was initiated in 1979 with the publication of *Healthy People*, the first Surgeon General's report on health promotion and disease prevention (DHHS, 1979). In that report five national health goals were announced for enhancing the health of the U.S. population at the five major life stages. These five goals may be portrayed as follows:

Health Status Goals

Age Group	1990 Goal*	Special Focus
1. Healthy Infants (below age 1)	35% Fewer Deaths	Low Birth Weight Birth Defects
2. Healthy Children (age 1-14)	20% Fewer Deaths	Growth and Development Injuries
3. Healthy Adolescents/ Young Adults (age 15-24)	20% Fewer Deaths	Motor Vehicle Injuries Alcohol and Drugs
4. Healthy Adults (age 25-64)	25% Fewer Deaths	Heart Attacks, Strokes, Cancers
5. Healthy Older Adults (age 65 +)	20% Fewer Sick Days	Functional Independence Influenza/Pneumonia

*Relative to 1977

Health Strategy Targets

Preventive Health Services for Individuals

- High Blood Pressure Control
- Family Planning
- Pregnancy and Infant Health
- Immunization
- Sexually Transmitted Diseases

Health Protection for Population Groups

- Toxic Agent and Radiation Control
- Occupational Safety and Health
- Accident Prevention and Injury Control
- Fluoridation and Dental Health
- Surveillance and Control of Infectious Diseases

Health Promotion for Population Groups

- Smoking and Health
- Misuse of Alcohol and Drugs
- Nutrition
- Physical Fitness and Exercise
- Control of Stress and Violent Behavior

These goals were based on an assessment of the recent trends combined with an estimate of the extent to which concerted and strategic intervention might accelerate potential gains. As seen above, special emphasis was given to two focal problems for each life stage. Fifteen priority areas were also identified as keys to achievement of the overall health status goals. These strategy areas were grouped into three categories—preventive health services, health protection, and health promotion—as a structure for planning national health strategies.

The 15 strategy targets were identified by assessing the risk factors involved in the leading sources of morbidity and mortality for each age group and determining those which public health could most effectively address. It was then decided that a broad-ranged public and private effort would be the best vehicle for establishing a national consensus on quantifiable objectives within each of the strategy categories.

To initiate the formulation of the objectives, a governmental planning group was assembled, and agencies within the U.S. Public Health Service were assigned responsibility for developing background papers. The papers reviewed the major challenges in each of the 15 areas, noted the program opportunities, and postulated a number of feasible objectives for the respective areas. The U.S. Public Health Service then called 167 experts from outside the Government to a conference in 1979. Provided with the relevant background papers, these experts were organized into 15 working groups and charged with developing the first public drafts of objectives for the 15 areas. Participants were selected for their insight into some aspect of risk reduction in a particular area; they represented a variety of institutional perspectives, including providers, academic centers, State and local health agencies, and voluntary health associations. In addition to the invited experts, approximately 50 representatives of interested Federal agencies attended the various working group sessions as observers.

The priorities for each category were generally arrived at through a consensus process, drawing baseline and background information both from the individual expertise of the participating authorities and from the background papers which had been prepared for the use of conferees. The process involved first identifying the most serious problems in each of the respective areas, giving attention not only to aggregate national data, but also to what was known about high risk groups, then matching those problems with what the knowledge base offered as the most viable opportunities for intervention against those problems. The last step in the process required assessing the balance of objectives within five categories: improved health status, reduced risk factors, improved public and professional awareness, improved services and protection, and improved surveillance and evaluation. The objectives on improved health status and reduced risk were meant to represent statements of anticipation and intent, rather than management enterprises. The directions for programmatic decisions meant to support objectives to improve health status and to reduce risks are found more substantially in the objectives that relate to improved public and professional awareness, improved services and protection, and improved surveillance and evaluation.

Each working group at the 1979 conference was also asked to identify the principal assumptions under which its projections were based, the resources needed for accomplishing each objective, and any anticipated changes in technology, societal attitudes, and norms.

The distribution of objectives by area is depicted below with a listing of the lead Public Health Service agency assigned to coordinate each strategy area.

Number of Objectives and Lead HHS Agencies

Category	Number of Objectives	HHS Agency/Office
Preventive Services		
– High Blood Pressure Control	9	National Institutes of Health
– Family Planning	9	Office of Population Affairs
– Pregnancy and Infant Health	19	Health Resources and Services Administration
– Immunization	18	Centers for Disease Control
– Sexually Transmitted Diseases	11	Centers for Disease Control
Health Protection		
– Toxic Agent Control	20	Senior Advisor for Environmental Health
– Occupational Safety and Health	20	Centers for Disease Control
– Accident Prevention and Injury Control	17	Centers for Disease Control
– Fluoridation and Dental Health	12	Centers for Disease Control
– Surveillance and Control of Infectious Diseases	13	Centers for Disease Control
Health Promotion		
– Smoking and Health	17	Office on Smoking and Health
– Misuse of Alcohol and Drugs	19	Alcohol, Drug Abuse, and Mental Health Administration
– Nutrition	17	Food and Drug Administration
– Physical Fitness and Exercise	11	President's Council on Physical Fitness and Sports
– Control of Stress and Violent Behavior	14	Alcohol, Drug Abuse, and Mental Health Administration
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The papers developed out of the working group efforts were edited within the Department of Health and Human Services, their availability was published in the *Federal Register*, and they were circulated to more than 2,000 groups and individuals nationally for review and comment. Revisions were made based on the comments received, circulated within the government for a final review, and issued in 1980 in the publication *Promoting Health/Preventing Disease: Objectives for the Nation*.[2]

Although the objectives are available in a U.S. Government document subject to the review process normally required of Federal policy, they do not constitute a Federal plan. The objectives themselves are intended to be national in scope and to serve as a challenge to both public and private sectors of American society. Because the objectives were composed through arbitration and consensus, they represent a unique blend of values and perspectives, as well as the state of knowledge at the time they were developed. Hence, some are imperfect statements of the actual potential involved.

Implementation of the 1990 Objectives

Each of the lead agencies was asked to convene working panels involving other agencies to identify those objectives which were the highest priority from the Federal perspective, to develop implementation plans which reflected the available and potential program activity to meet these objectives, and to identify the Federal participants beyond the Department of Health and Human Services and the private sector participants whose cooperation in the process might be required. Once these implementation plans were developed, they were again circulated within the Government as well as to various interested parties and revised accordingly. They were published in 1983 in a special supplement of *Public Health Reports* (DHHS, 1983).[3]

Two evaluative elements have been built into the overall scheme. First, a system of progress reviews was established, as briefings for the Assistant Secretary for Health. Sessions were scheduled to assess the progress of efforts to achieve the objectives in each priority area. By Spring 1986 two full rounds of progress reviews have been completed. At these progress review sessions, the representatives from lead agencies gather together with other cooperating agencies and present to the Assistant Secretary for Health status reports on the objectives and their program of activities. At that time the potential shortfalls are noted, problems are raised and suggestions made for revision of the objectives and/or the implementation plans. Summaries of these reviews are then published in *Public Health Reports* and the *Mortality/Morbidity Weekly Reports* to provide broader dissemination of the activities.

Second, a midcourse review was planned during which a thorough assessment would be completed on the middecade status of all of the 1990 objectives. In addition, each of the lead agencies has coordinated a close scrutiny of the objectives with an eye toward what gaps existed in the current objectives and what changes would need to be made in order to make the objectives more functional. It was intended that the midcourse review be:

- *decentralized*, with each lead agency bearing responsibility for the conduct of the review;
- *comprehensive*, covering all of the objectives regardless of their priority;
- *editorial*, focusing on review, comment and suggestion;
- *participatory*, with a wide variety of organizations, agencies, institutions and individuals invited to participate; and
- *preparatory*, designed to set the stage for development of objectives for the year 2000.

The review was to focus on quantification of the status of the objectives to the extent possible, with responsible and credible review, comment and suggestion.

Data Sources for Midcourse Review

For most of the 226 objectives, there were several possible sources for the data which were tracked. Several criteria were developed to evaluate the worth or usefulness of the source of data to be included in ongoing monitoring efforts:

- the relevance to the quantitative target of the objective;
- representation in the data of one or more of the demographic or geographic elements stipulated or implied in the objective;
- a date for the data that is more recent than the baseline year; and
- adherence of the survey methodology to accepted statistical procedures, e.g., probability sampling.

When several sources meet these criteria, preference was given to a source that provides data that:

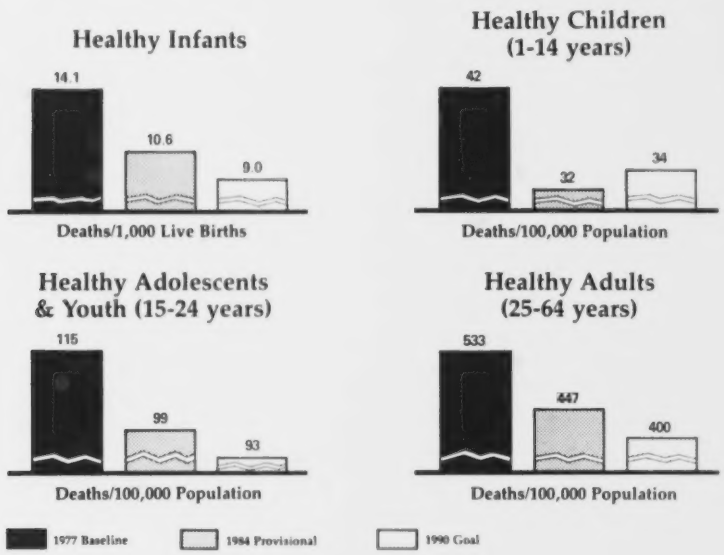
- are gathered with scheduled regularity (e.g., yearly or biennial surveying is highly preferable); and
- come from a highly reliable collecting agency, i.e., one which specializes in conducting national surveys (e.g., NCHS, Bureau of Labor Statistics, Bureau of the Census).

If an objective was found to have only a single source of data, that source was reviewed in terms of the criteria listed above before it was judged acceptable for objective tracking. Each of the lead agencies initially produced a written midcourse review. This document represents a summary of the 15 midcourse reviews.

Midcourse Review Summary

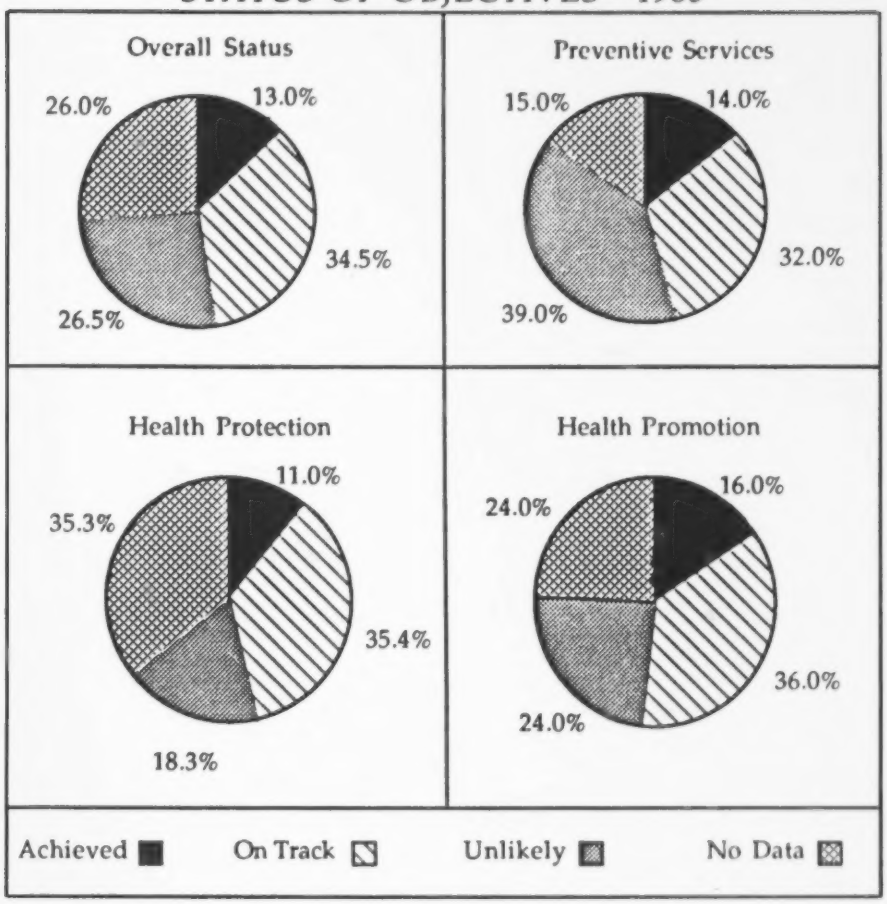
As can be seen by the figure below, the Nation has made extensive progress towards the five goals established by the Surgeon General in 1979, based on population statistics as of 1984. Mortality among infants has declined by 24 percent, childhood mortality by 23 percent, adolescent and youth mortality by 13 percent, and mortality among adults by 16 percent. If current trends continue, the Nation should accomplish its 1990 goals, with the one for children already accomplished by 1985.

National Goals for Health Promotion



The charts below contain summaries of the results of the Midcourse Review by major category and objectives type. An examination of those charts indicates overall that 13 percent of the 1990 objectives have already been accomplished by 1985, with another 35 percent on track to be accomplished by 1990 if current trends continue. Just over 26 percent are unlikely to be achieved, and there is an absence of data on the remaining 26 percent of the objectives. Still, available data indicate that trends are in the wrong direction for less than four percent of the objectives.

STATUS OF OBJECTIVES—1985



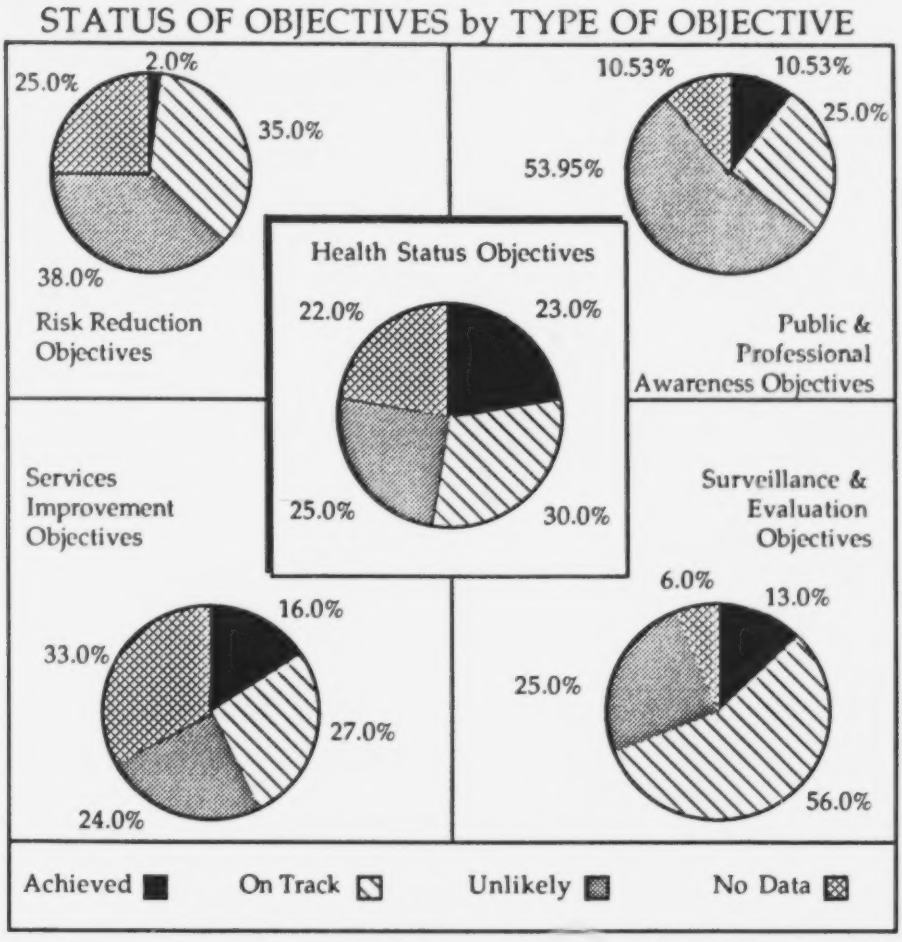
Preventive Health Services A closer examination of these graphs shows some differences in objective accomplishment by category. For Preventive Health Services, trends indicate that more than 45 percent of those objectives will be accomplished by 1990 (sum of those already met and those on track). However, almost 40 percent of these objectives are unlikely to be met without substantial changes in trends—due in large part to the health status and risk reduction objectives.

Health Protection While more than 46 percent of the Health Protection objectives will likely be met by 1990, here the major problem is lack of data for over 35 percent. This is due in large part to the difficulty in data collection for the Toxic Agent and Radiation Control objectives—particularly those related to health services in this area.

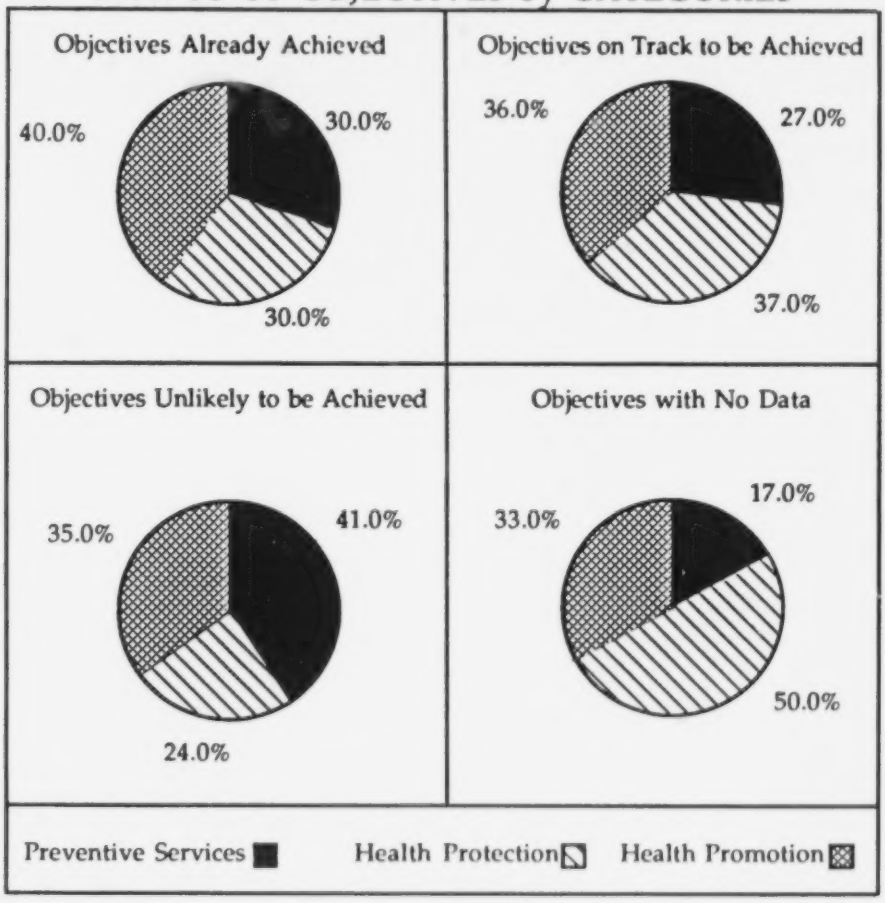
Health Promotion Here 52 percent of the objectives appear likely to be met by 1990—with the remaining 48 evenly split between little likelihood of accomplishment and lack of data. Here the Public Awareness objectives appear most problemmatic with more than 40 percent lacking data.

The following graphs illustrate these results in summary form for objective type. In examining the Midcourse Review by objective type, some striking distinctions become apparent.

- The highest proportion of objectives likely to be accomplished by 1990 (sum of those already met and those likely to be met) is among the surveillance objectives (68 percent).
- Public Awareness (41 percent) and Health Services (33 percent) objectives are most problemmatic with respect to availability of data.
- The objectives least likely to be accomplished given current trends are the Risk Reduction objectives (38 percent).



Of those objectives already achieved, the largest percentage are health promotion objectives (n = 12, 40 percent of those achieved). Both health promotion (n = 28, 36 percent) and health protection (n = 29, 37 percent) accounted for the largest proportion of objectives likely to be achieved given current trends. Preventive services (n = 26, 43 percent) account for the largest proportion of objectives unlikely to be met, and of those objectives for which there are no date, health protection (n = 29, 50 percent) accounted for the largest proportion.



Substantive coverage of explanations for these trends is contained in the chapters covering the individual priority areas.

General Findings at Midcourse

The real conclusions to be drawn about the 1990 Health Objectives for the Nation must await 1990. A final report on this first decade-long experience in setting measurable health targets can be expected in 1991. It should offer many insights into the process, as well as rich information about specific health measures, for use by those who undertake to achieve a new set of disease prevention and health promotion objectives between 1990 and 2000.

Meanwhile, what has been learned so far? The most important midcourse findings are very specific. For them, one must read farther in this report as each objective is stated and the latest available data (in 1985) are used to measure what progress has been achieved so far. A number of general points can and should also be made to set the specific findings that follow in proper perspective.

First, overall there is cause for optimism that so much progress has in fact been achieved across most of the 15 priority areas. The general picture is one of a Nation doing the business of preventing disease and promoting health for its

citizens more effectively in this decade than it did in the last, despite selected causes for concern for certain objectives whose prognosis is pessimistic and certain problems (e.g., AIDS) unanticipated at the time the objectives were established. This optimistic overall assessment should be set in proper context: It is the result of national effort. It is not a Federal accomplishment. The objectives themselves are national, not Federal, targets for achievement. In fact, no one sector of society, government or private, can take sole credit for the successes or must shoulder responsibility for the failures alone. Indeed, some of the positive changes may have occurred without the benefit of special resources or innovative programs. In short, credit—and blame—for the Nation's health status at the midcourse belongs collectively to the Nation.

Second, there is no guarantee that those objectives that have been achieved already or are "on track" to be achieved by 1990 will in fact be counted as achieved when the final tally is made. They involve the kinds of activities that cannot be done once, like a piece of sculpture, and then be left standing behind to be admired. Their achievement requires sustained attention—immunizations for each succeeding generation, injury prevention efforts that are vigilant around the clock without time off, behavioral improvements that can slip back into previous unhealthy patterns without warning. The Midcourse Review must not be used as a document for determining which areas of public health concern no longer require attention, on the grounds that attainment of the objectives that address those areas is well in hand. In short, there can be no relaxation of effort.

Third, lack of data to measure the status of many objectives is a valid cause of concern; but before the judgment is made to start creating additional data collection systems or formulating new research studies to fill those information gaps, decisions should be made about whether the individual objectives in question warrant such an allocation of finite resources. It may be appropriate, in some cases, to continue to pursue improvements in health status, reduction of risks to health, or improvements in awareness, services and surveillance without sufficient data to track progress adequately. In some cases, priorities in the middle of the decade may have changed, science may have made unexpected advances, or constructs of health problems may have shifted, and pursuit of data to measure an objective conceived in 1980 may now be considered wasteful or useless. In such cases, the commentary on the objective discusses those points and may offer alternative ways of stating a similar, but more useful, objective. The determination that data are lacking can be cause for reconsideration as well as cause for recasting research agendas or building new data collection systems.

Fourth, the most important messages from the Midcourse Review may be found in the objectives which are judged to be "unlikely" to be achieved by 1990 and, in particular, those in which the trends are in the wrong direction. Again, this review allows an opportunity for reassessment: Is the objective still important? If it is, then the review puts the spotlight on issues where attention, resources, skill or policy have been inadequate to date and changes in one or all of these components of disease prevention and health promotion will be required. Thus, this review can serve as raw material for agenda-setting for the next five years.

Fifth, the 15 priority areas, when grouped together for a report on their midcourse status, may prompt a tendency to carry out a comparison among them. Such a comparison is not the reason for a midcourse review. Any tendency to review the priority areas competitively should be resisted. They are widely disparate areas in terms of the developmental stage of their science bases, the effectiveness of the technologies upon which they depend, and the efficiency and ubiquity of their service delivery systems. The differences are even quite substantial among objectives within priority areas. The priority areas are not addressed in the Midcourse Review in order of their importance for public health. Neither are

their midcourse standings meant to be judged by contrast to each other. Each stands alone and deserves individual consideration.

Finally, though each priority area must be viewed independently of comparisons with the others the Midcourse Review pulls all 15 together allowing an overall portrait of the Nation's health in 1985 from a prevention point of view. Taken together, review of 226 separate objectives—one by one—draws a fairly comprehensive picture of how the Nation is approaching health improvement and risk reduction in the 1980s.

Notes

[1] McGinnis, J.M. Targeting Progress in Health. *Public Health Reports*, Vol. 97, No. 4, 1982.

[2] U.S. Department of Health and Human Services. *Promoting Health/Preventing Disease: Objectives for the Nation*, U.S. Government Printing Office: Washington, DC, Fall 1980.

[3] U.S. Department of Health and Human Services. Promoting Health/Preventing Disease: Public Health Service Implementation Plans for Attaining the Objectives for the Nation. *Public Health Reports*, Supplement to the September-October 1983 issue.

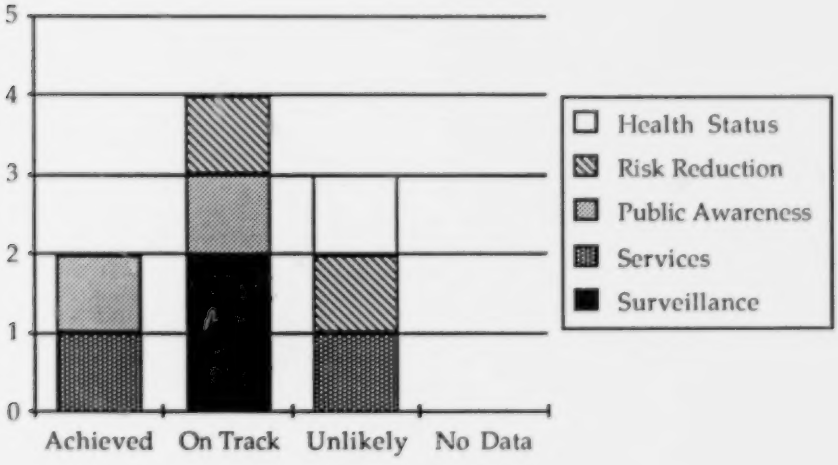
I. PREVENTIVE SERVICES

A. High Blood Pressure Control
B. Family Planning
C. Pregnancy and Infant Health
D. Immunization
E. Sexually Transmitted Diseases

Controlling high blood pressure has proven to be one of the most effective means available for reducing mortality in the adult population. Death rates from heart disease and stroke—both of which are linked causally to elevated blood pressure—continue to rank first and fourth among causes of death in the United States, according to 1984 provisional data (Monthly Vital Statistics Report, NCHS, 1985). But significant progress has been made. Between 1972 and 1984, the death rate from heart disease fell 33.9 percent; since 1980 the rate has fallen nine percent. In the same 12-year period, the death rate from stroke fell 47.8 percent; since 1980, the rate has fallen 17 percent. Achievements in control of high blood pressure, including a remarkable level of public awareness, have contributed to this positive change.

Results of a 1985 national public awareness survey illustrate the high level of public awareness about high blood pressure in the U.S. today. Eighty-six percent of the adult population had their blood pressures checked, either by a physician or by self-testing, at some point in the preceding 12 months (Prevention Index, 1986). Ninety-two percent are aware that high blood pressure increases one's likelihood of having heart disease (National Health Interview Survey, 1985). Between 1982 and 1985, visits to physicians for high blood pressure screening and

Status of High Blood Pressure Control (9 Objectives)



monitoring increased 52.7 percent, during a period when visits for other reasons increased 4.8 percent (National Disease and Therapeutic Index, 1985).

Because of changes in the definitions of high blood pressure, and as a result of difficulties in measuring and monitoring the prevalence of high blood pressure, the tabulation of the status of the nine high blood pressure control objectives only partially describes progress that has been made. Clearly those objectives that call for increases in public awareness and improvements in surveillance and evaluation systems are most likely to be achieved.

IMPROVEMENT OF HEALTH STATUS

Objective a.

By 1990, at least 60 percent of the estimated population having definite high blood pressure should have obtained successful long term blood pressure control, i.e., a blood pressure at or below 140/90 for two or more years.

NOTE: At the time this objective was written, high blood pressure was defined as a measurement of 160/95 mm Hg or higher. The results of the Hypertension Detection and Follow-up Program, released since this objective was written, demonstrated the value of treating mild hypertension, as did a number of subsequent clinical trials. As a result, the definition of high blood pressure was changed in 1984 to a measurement of 140/90 mm Hg or higher.

Baseline

High blood pressure control rates varied among communities and States, with a range generally estimated to be from 25-60 percent based on 1979 data.

Status

The National Health and Nutrition Examination Survey (NHANES-II), conducted between 1976-1980, defined hypertension as 140/90 mm Hg or above. It found 11 percent of hypertensives had their high blood pressure under control. Data on blood pressure levels from seven State Coordination Projects conducted by the National Heart, Lung, and Blood Institute (NHLBI) indicate that approximately 24 percent of the hypertensives had their blood pressure reduced to less than 140/90 mm Hg. In the State of Maine, 25 percent had controlled pressures of less than 140/90.

Comment

Based on redefinitions of high blood presssure and progress to date, it is unlikely that this objective will be met. The only national source of data that addresses this objective is the National Health and Nutrition Examination Survey (NHANES). NHANES provides neither the pretreatment blood pressures of patients with "controlled hypertension," nor the number of years hypertensives have been under control. The objective's requirement of "two or more years" and its dependence on a comparison of present blood pressure control with prior status of "definite high blood pressure" pose measurement problems. It also should be noted that the term "definite" high blood pressure is no longer used.

High blood pressure, as defined by the 1984 Report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure, is now considered to be 140/90 mm Hg or above. This objective could be rephrased so that it

could be measured with existing or upcoming data sets as follows: "By 1990, at least 60 percent of the estimated population having high blood pressure (defined as 140/90 mm Hg or above, or taking antihypertensive medication) should have obtained successful blood pressure control, i.e., blood pressure below 140/90 mm Hg." By rephrasing this objective it would be possible to use the 1976-1980 NHANES II data to quantify progress. NHANES II data suggest that between 1976 and 1980, 11 percent of hypertensives had their blood pressure under control (i.e., under 140/90 mm Hg). By 1983, the Seven States Projects reported 24 percent of those with hypertension had their blood pressure under control, indicating progress toward meeting the objective. It is important to note that the NHANES II data were collected between 1976 and 1980, and at that time the National High Blood Pressure Education Program did not recommend treating those whose blood pressure was below 160/95 mm Hg.

RISK REDUCTION

Objective b. By 1990, the average daily sodium ingestion (as measured by excretion) for adults should be reduced to at least the three to six gram range.

Baseline In 1979, estimates ranged between averages of four to ten grams of sodium.

Status Recent population surveys to calculate sodium ingestion by measuring excretion are not available. However, recent estimates of adult intake have been made from dietary intakes. Data from the first two years of the revised FDA Total Diet Study (1982-1984) indicate that average sodium intakes for adults, excluding salt added at the table, were within the Established Safe and Adequate Daily Dietary Intake (ESADDI) range of 1100 to 3300 mg established by the National Academy of Sciences in 1980. Very preliminary one-day data from the USDA indicate that the average sodium intake of women ages 19 to 40 is about 2600 mg, not including salt added at the table. However, data from both surveys indicate that sodium intake among children is above the ESADDI range established for child age groups. (Total Diet Study (TDA), and Food Label and Package Survey (FLAPS), Food and Drug Administration; the National Health and Nutrition Examination (NCHS); and the Nationwide Food Consumption Survey and the National Nutrition Data Bank.)

Comment Progress on this objective as stated is difficult to assess without population data on sodium excretion. Recent estimates based on dietary data suggest that average nondiscretionary sodium intakes for adults may fall within the target range of this objective. However, caution must be exercised in interpreting these because estimates of sodium intake based on dietary data are much less precise than excretion data. Also, the sodium content of some food is highly variable, as is the amount of sodium added by consumers in preparation or at the table.

An analysis of the FDA 1982-1983 and 1983-1984 Total Diet Study data estimated that daily sodium intakes excluding salt added at the table were: 724 mg for infants six to 11 months, 1688 mg for two-year-old children, 2210 mg for females 14

to 16 years old, 3359 mg for males 14 to 16 years old, 2016 mg for females 25 to 30 years old, 3097 mg for males 25 to 30 years old, 1917 mg for females 60 to 65 years old, and 2656 mg females 60 to 65 years old. These data indicate that, except for two-year-old children and the 14- to 16-year old-males, nondiscretionary sodium was within the ESADDI range established by the National Academy of Sciences in 1980.

Substantial efforts have been directed toward reducing the average U.S. sodium intake since 1980. Public information programs by both government and private organizations have helped to increase public awareness about the association between high sodium intake and hypertension in some individuals, about sources of sodium in the diet, and about recommended sodium intakes. Data about consumer knowledge collected between 1973 and 1983 indicate significant increases in public awareness of the relationship between sodium and hypertension and in consumer avoidance of salt or sodium.

Also, as a result of FDA's regulatory efforts, sodium content is labeled on many more food products than prior to 1980. Data from the FLAPS show an increase in the percentage of packaged processed foods with sodium labeling, from 7.5 percent in 1978 to 40 percent in 1984.

On the basis of available information, it is highly likely that some decrease has occurred in average sodium consumption. Continuing public education about sodium, coordinated with education about other risk factors associated with chronic diseases, is needed to accomplish this objective. Collection of data about sodium intake by both dietary and urinary excretion assessment on representative samples of infants, children and adults in NHANES III would be extremely helpful in measuring progress on this objective.

NOTE: This objective erroneously refers to "daily sodium ingestion." It should read "salt," not "sodium." Three to six grams salt corresponds roughly to 1.2 to 2.4 grams sodium. Likewise, the baseline data cited should read four to 10 grams salt (or 1.6 to four grams sodium). The objective was initially based on data from the 1976-80 Health and Nutrition Examination Survey (HANES) II survey. The 24-hour dietary recall component of this survey found the mean daily sodium consumption to be about 2.3 grams for females (range for 18-74-year-olds: 1.9-2.3 grams) and about 3.3 grams for males (range for 18-74-year-olds: 2.9-4.1 grams). A sodium target as low as 1.2-2.4 grams daily may not be necessary for the entire population. The issue is currently under study.

Objective c. By 1990, the prevalence of significant overweight (120 percent of "desired" weight) among the U.S. adult population should be decreased to 10 percent of men and 17 percent of women, without nutritional impairment.

Baseline In 1971-1974, 14 percent of adult men and 24 percent of women were more than 120 percent of desired weight.

Status National data on the prevalence of overweight individuals, based on actual measurement, are not available for the period from 1980 to 1985. In 1976-80, 26.3 percent of adult men and 29.6 percent of adult women were overweight. (National Health and Nutrition Examination Survey II, NCHS.)

NOTE: The NHANES II, conducted between 1976 and 1980, used the body mass index (BMI) measurement, where body weight is adjusted for height (BMI =

Body Weight in Kilograms / Height in Meters) to assess overweight conditions. Overweight was defined as BMI greater than or equal to 27.8 for males and 27.3 for females. Severe overweight was defined as BMI greater than or equal to 31.1 for males and 32.3 for females, these values being equal to the 95th percentile for males and females in the 20-29 year old age range. The appropriate language for this objective in terms of BMI would be: "By 1990, the prevalence of overweight (BMI of 27.8 or higher for men and 27.3 or higher for women) among the U.S. adult population should be reduced, without impairment of nutritional status, to approximately 18 percent of men and 21 percent of women."

Comment

Based on the NHANES I and II data, which suggest little reduction in overweight between 1971 and 1980, it appears unlikely that this objective will be achieved. Data from the upcoming NHANES III will be required, however, to assess the actual progress, or lack thereof, since 1980 in the reduction of overweight in the population.

Obesity and overweight are of complex etiology. The National Institutes of Health Consensus Development Conference on the Health Implications of Obesity, held in December 1984, stated that obesity in man is complex and deeply rooted in the biologic system. There are different types of obesity, and they almost certainly have multiple causes. It is vitally important to increase the understanding of obesity to enable prevention. Several areas for investigation were stressed by the Conference, including the elucidation of biologic markers, factors regulating the distribution of body fat, studies of energy regulations, and studies using the techniques of anthropology, psychiatry, and the social sciences.

Obesity is a significant public health problem because it affects a large proportion of the population and has adverse effects on health and longevity. Weight reduction is desirable for individuals who are overweight as defined by BMI, and for individuals who are less obese but have certain medical conditions, such as non-insulin-dependent diabetes mellitus, hypertension, hypertriglyceridemia, or hypercholesterolemia. Therefore, this objective continues to be a high priority for the health provider community as well as research scientists working to expand the knowledge base describing the causes and types of obesity.

PUBLIC AND PROFESSIONAL AWARENESS

Objective d.

By 1990, at least 50 percent of adults should be able to state principal risk factors for coronary heart disease and stroke, that is, high blood pressure, cigarette smoking, elevated blood cholesterol levels, and diabetes.

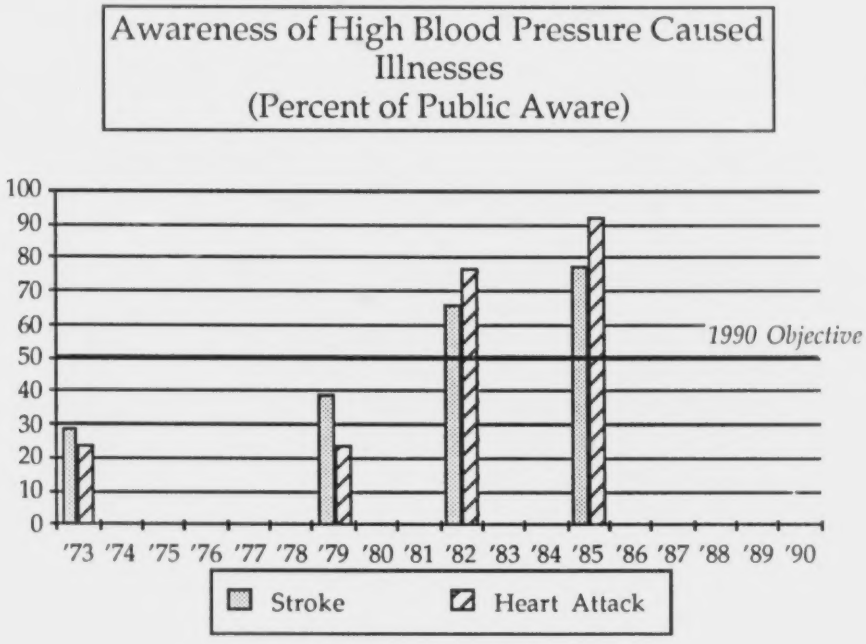
Baseline

In 1979, 24 percent of the public thought that high blood pressure was a likely cause of heart trouble, 32 percent thought that cigarette smoking was a likely cause, 11 percent thought that cholesterol and fatty foods were causes of coronary heart trouble.

Status

In 1985, an estimated 92 percent of the public thought that high blood pressure was related to coronary heart disease and 78 percent related high blood pressure

to stroke; cigarettes were cited as linked to coronary heart disease by 91 percent; 86 percent linked cholesterol to coronary heart disease; and 60 percent cited diabetes as a cause of coronary heart disease.



Source: National Center for Health Statistics

Comment

Based on progress to date, it appears that this objective already has been met. Success in reaching this objective is attributable in large part, to the effectiveness of the National High Blood Pressure Education Program and the many cooperative, complementary efforts of public and private organizations at national, State and local levels.

Objective e.

By 1990, at least 90 percent of adults should be able to state whether their current blood pressure is normal (below 140/90) or elevated based on a reading taken at a most recent visit to a medical, dental, professional, or other trained reader.

Baseline

In 1974, an estimated 47 percent of the population reported their blood pressure to be high, low, normal or other based on a reading within the past year; 21 percent had not been told, 32 percent had not had their blood pressure taken.

Status

In 1985, an estimated 73 percent of the population had had their blood pressure taken by a physician within the past year and 87 percent had had their blood pressure measured within the past 24 months. Seventy percent of those whose blood pressure was taken within the past 24 months (or approximately 61 percent of the total population) were given the numbers measuring systolic and diastolic pressure. (National Health Interview Survey, 1985, NCHS)

Comment

Based on progress to date, using surrogate data to track progress, it appears likely that this objective will be met. The 1976-1980 National Health and Nutrition Examination Survey data indicated that 54 percent of those with high blood pressure were aware of their conditions. Data collected in 1983 from demonstration projects in seven States indicated that approximately 65 percent of those persons with blood pressure of 140/90 mm Hg or above or taking antihypertensive medication were aware of their condition. While the latest data from the National Health Interview Survey (1985) do not provide information about whether individuals can interpret their blood pressure readings, they do confirm that over 70 percent of those who had their blood pressure taken within the past 24 months were told the values.

Achievement of this objective depends on continued growth in the commitment of health providers and organizations to educate the public about high blood pressure, emphasizing the need for clinical screening of high blood pressure.

IMPROVEMENT OF SERVICES

Objective f.

By 1990, no geopolitical area of the United States should be without an effective public program to identify persons with high blood pressure and to follow up on their treatment.

Baseline

Baseline data were not available.

Status

As of 1985, all State health departments have coordinated hypertension control programs.

Comment

Based on progress to date, this objective already has been met. Though all State health departments have coordinated hypertension control programs, reductions in block grant programs have led some States to consolidate their high blood pressure control programs with other risk factor reduction efforts, raising uncertainties about the fate of high blood pressure control programs should further resource reductions are made.

Objective g.

By 1985, at least 50 percent of the processed food sold in grocery stores should be labeled to inform the consumer of sodium and caloric content, employing understandable, standardized, quantitative terms.

Baseline

In 1979, labeling for sodium was rare; the extent of caloric content labeling was about 50 percent in this marketplace.

Status In 1982, 30 percent of processed food sold in grocery stores had sodium labeling and 49 percent had labels that include information about caloric content. [Food Labeling and Packaging Survey (FLAPS)]

Comment Based on progress to date, it appears that this objective was not met by 1985. In July 1986, a new Food and Drug Administration (FDA) regulation goes into effect, requiring that all processed foods have sodium content included on the product label. Based on this requirement and progress to date, it is likely that this objective will be met in 1986. This consumer information will play an important role in making it possible for persons at risk to modify their diets as one means of controlling high blood pressure.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective h. By 1985, a system should be developed to determine the incidence of high blood pressure, coronary heart disease, congestive heart failure, and hemorrhagic and occlusive strokes. After demonstrated feasibility, by 1990, ongoing sets of these data should be developed.

Baseline No system was in place prior to the development of this objective.

Status The National Heart, Lung and Blood Institute (NHLBI) has initiated the Community Cardiovascular Disease Surveillance program.

Comment The first part of this objective has been met. Depending on the accuracy of the data collected by the Community Cardiovascular Disease Surveillance program, it is likely that the second part — an ongoing system of data collection on various forms of cardiovascular disease — will be achieved by 1990. Currently, the program is collecting data from test sites, documenting trends in cardiovascular disease in Davis, California, Chapel Hill, North Carolina, Pittsburgh, Pennsylvania, Baltimore, Maryland, and Houston, Texas.

Objective i. By 1985, a methodology should be developed to assess categories of high blood pressure control, and a national baseline study of this status should be completed. Five categories are suggested: 1) unaware; 2) aware, not under care; 3) aware, under care, not controlled; 4) aware, under care, controlled; 5) aware, monitored, without therapy.

Baseline No such methodology existed prior to the development of this objective.

Status As of 1985 a methodology has been developed.

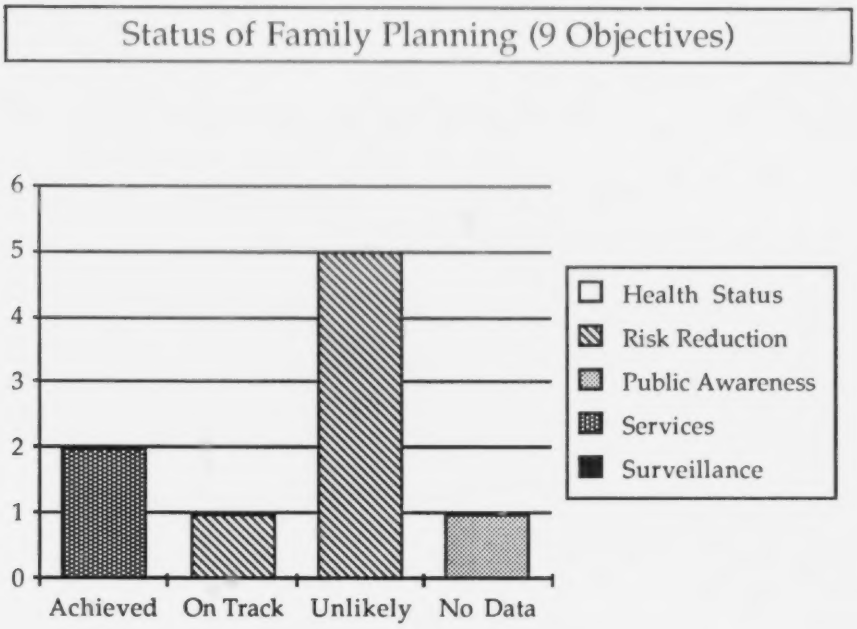
Comment

The first part of this objective has been met. Plans are now being formulated to include information collection, using the five suggested categories, as part of the National Health and Nutrition Examination Survey (NHANES) III. Thus, the objective will be met by 1990.

Section B FAMILY PLANNING

Family planning denotes clinical preventive services in support of decisions involving fertility and contraception; but it reflects as well developments related to broader social issues. In the years since the establishment of the 1990 Health Objectives for the Nation, patterns of family life and the demographics of childbearing have shifted. Although family size is decreasing, the rate of pregnancies among teen-age girls continues to increase and in 1983 the rate of child-bearing by unmarried women was the highest ever observed for that group. (Monthly Vital Statistics Report, NCHS, 1985). Reductions in teenage fertility rates and in rates of unwanted pregnancies, though considered significant public health priorities, are also clearly tied to social and economic factors that transcend concerns about maternal and child health or even the mental and emotional wellbeing of individuals and families.

While recognizing the difficulties in both designing and measuring national family planning goals, as some of the summaries indicate, sections of the family planning objectives can be refined and improved to more appropriately measure specific public health concerns and to reflect current trends. For instance, several objectives seek to reduce fertility (birth) rates for teenage girls and single women.



Given that the primary purpose of family planning services is to assist people in their decisions to postpone or prevent pregnancy, it might be more appropriate to restate these objectives in terms of pregnancy rates rather than fertility rates. A pregnancy rate measure would more closely track the basic family planning health concern. Although in this case additional efforts are necessary to construct pregnancy rates, it is possible to do so. Surely improved statements and measures will enhance objectives which strive to assess the status of family planning in the Nation.

The nine objectives in the Family Planning priority area reflect the difficulties and the accomplishments of efforts to improve the health status of Americans through measures related to child-bearing practices. Some risk factors—especially those related to teenage pregnancy—are showing very little change. Preliminary information gleaned at mid-decade from demonstration programs targeted to high risk teenagers hold some promise that innovative approaches to primary prevention and care services may yet begin to affect positive changes in adolescent sexual activity, teen pregnancy, and improved outcomes for pregnant teens. The Secretary of the Department of Health and Human Services has made the issue of teenage pregnancy a major priority for departmental emphasis.

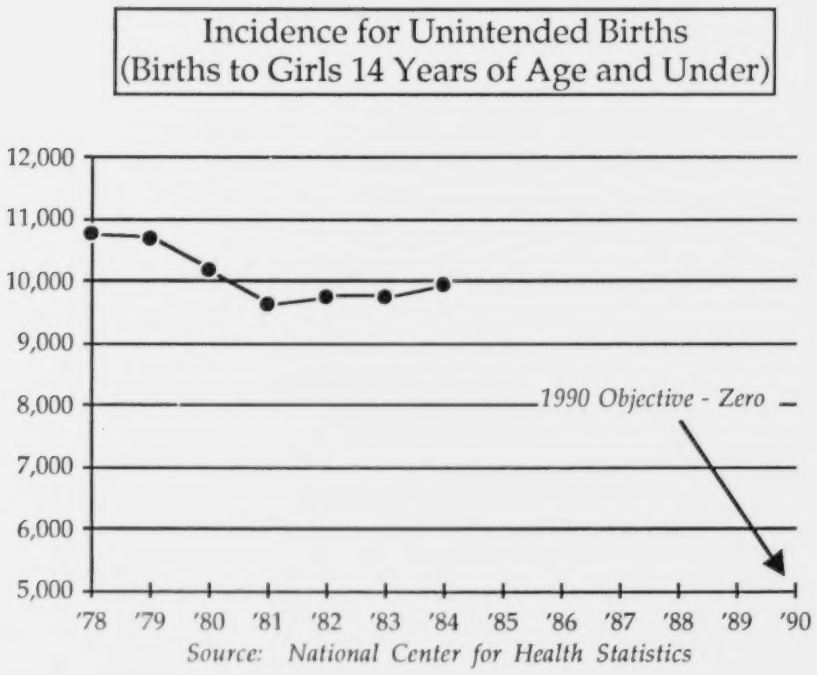
RISK REDUCTION

Objective a. By 1990, there should be almost no unintended births to girls 14 years of age and under. (Note: the assumption is made that all births to this age group are unintended).

Baseline In 1978, there were 10,772 recorded births to girls 14 years of age and under.

Status In 1984 there were 9,965 recorded births to girls 14 years of age and under.

Comment Based on progress to date, it appears unlikely that this objective will be met. While the data show an overall decline in the number of births since 1978, that trend is due, at least in part, to the declining number of girls in the 10 to 14 age group. At the same time, age-specific birth rates (the number of births to girls 10 to 14 years of age per 1,000 girls in this age group) for this age group have remained almost constant. It would be preferable to use age-specific birth rates in measuring the objective since the actual number of births is probably not the best indicator of trends. The age-specific birth rate for teenage girls 10 to 14 years of age was 1.2 births per 1,000 in 1984—slightly down from the peak of 1.3 in 1975. While an age-specific birth rate of 1.2 could be considered "almost no unintended births," such an interpretation is misleading since the birth rate for this age group has not been below the low of 0.8 per 1,000 observed in the 1960's since 1940 when it was 0.7. Neither the actual number of births nor age-specific birth rates are expected to show substantial decline. The number of girls 10 to 14 years old projected for the year 1990 is about 8.2 million, which, given current birth rates (1.1 per 1,000) for this age group, would yield about 9,000 births to girls this age.



There are some significant difficulties in programming to achieve this objective. The objective targets girls under the age of 15 who are sexually active and who are not using effective means of contraception. A rather small percentage of girls under the age of 15 are sexually active (although, in some subgroups, the percentage is significantly higher than in others). Focusing on this population may involve directing efforts toward a small group which is widely dispersed. Developing and agreeing on interventions designed to reach the small share of girls in this age group at actual risk of pregnancy may not be possible.

There are a limited number of possible interventions and all are complicated. They include:

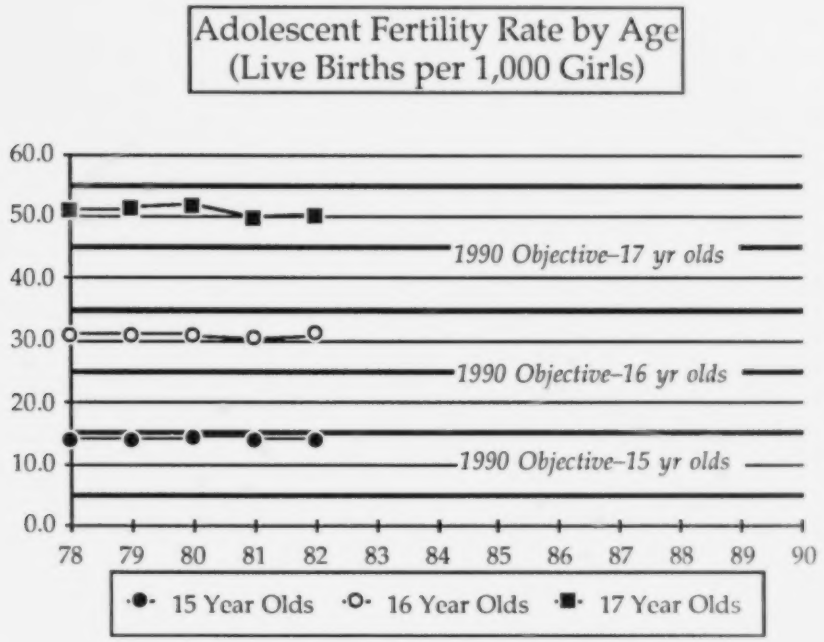
- Postponing teen sexual activity through primary prevention requires parental or school involvement in the sex education of children. School-based sex education has been proposed as a remedy for this problem, but there is controversy about the content and timing of sex education in communities around the country. Any national program developing and disseminating sex education curricula will need to be sensitive to family and community values in order to gain acceptance by local schools and youth-serving organizations.
- Adolescents may already receive free confidential family planning services in Title X clinics. Over one-third of the four million persons receiving family planning services in Title X clinics are adolescents. While most are older than 16, a substantial number are younger than 15. However, provision of contraceptives as a prevention measure also has problems. First, it may be counterproductive to promote contraceptives aggressively for young teenagers because of the possibility that sexual activity may be encouraged. Efforts to target contraceptives to young teens may evoke strong community efforts to curtail the availability of Title X services to teenagers. Second, young teens are poor contraceptors. Among teens younger than 15 at first intercourse, less than a third used contraception.

- In 1981, the abortion rate for teenagers under age 15 was 536 abortions per 1,000 pregnancies. Reducing teenage childbearing by increasing the number of teenage abortions is not considered to be a sound intervention policy.

Objectives b.c.d. By 1990, the fertility rate for girls 15 years of age should be reduced to 10 per 1,000, the fertility rate for 16 year old girls should be reduced to 25 per 1,000, and the fertility rate for 17 year old girls should be reduced to 45 per 1,000. (When the fertility rate is defined as the number of live births per 1,000 women of the specified age group.)

Baseline In 1978, the fertility rate was 14.0 per 1,000 for 15 year olds, 31.0 per 1,000 for 16 year olds, and 51.0 per 1,000 for 17 year olds.

Status In 1984, the fertility rate was 13.4 per 1,000 for 15 year olds, 29.5 per 1,000 for 16 year olds, and 50.9 per 1,000 for 17 year olds.



Source: National Center for Health Statistics

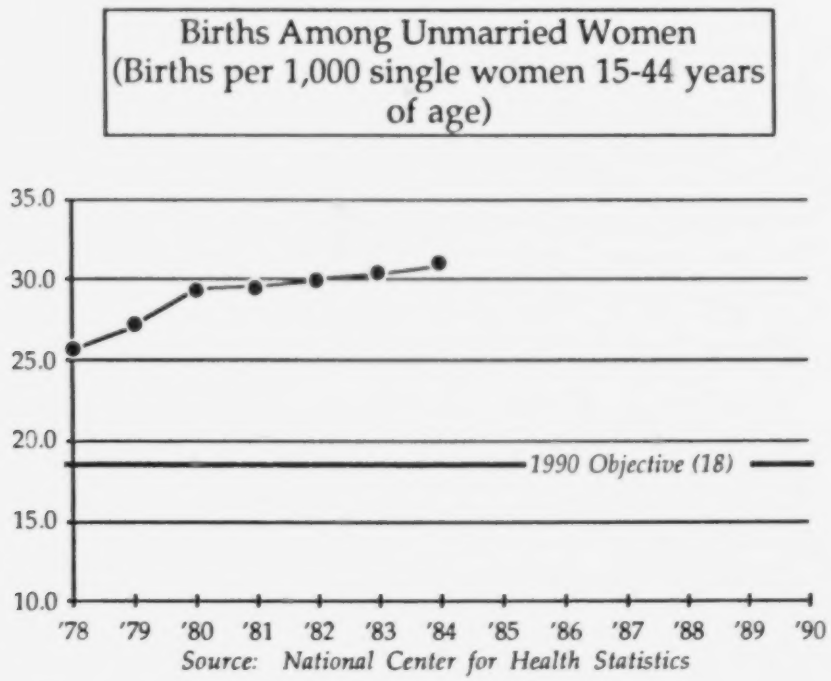
Comment Based on progress to date, it is unlikely that this objective will be met. There have been only slight declines in fertility rates for older teenagers (16 and 17). While the total number of births to teenage girls will probably decline as the teenage population is projected to decrease, the fertility rate is not expected to decline significantly.

There are a limited number of possible interventions and all are complicated. They include:

- Postponing teen sexual activity through primary prevention requires parental or school involvement in the sex education of children. School-based sex education has been proposed as the remedy for this problem, but there is controversy about the content and timing of sex education in communities around the country. Any national program developing and disseminating sex education curricula will need to be sensitive to family and community values in order to gain acceptance by local schools and youth-serving organizations.
- Over one-third of the four million persons receiving family planning services in Title X clinics are adolescents. Most are older than 16. Adolescents already have access to free confidential services in Title X clinics. However, provision of contraceptives as a prevention also has problems. First, it may be counterproductive to promote contraceptives aggressively for teenagers because of the possibility that sexual activity may be encouraged. Efforts to target contraceptives to teenagers may create strong community efforts to curtail the availability of Title X services for them. Second, teens are not good contraceptors. Approximately half of all teens 15 to 17 did not use contraception at first intercourse. In addition, for teens in this age group, the time from first intercourse to an initial clinic visit is about one year.
- In 1981, the abortion rate for teenagers between the ages of 15 and 19 was 393 per 1,000 pregnancies. Reducing teenage child-bearing by increasing the number of teenage abortions is not considered to be a sound intervention policy.

Objective e.

By 1990, reductions in unintended births among single American women (15 to 44 years of age) should reduce the fertility rate in this group to 18 per 1,000.



Source: National Center for Health Statistics

Baseline In 1978, there were 25.7 births per 1,000 unmarried women 15 to 44 years of age.

Status In 1984, there were 31.0 births per 1,000 unmarried women 15 to 44 years of age.

Comment Based on progress to date, it is unlikely that this objective will be met. Various demographic trends contribute to this lack of progress, and there are no indications that these trends will reverse themselves.

- While the most recent data indicate that sexual activity rates for teens has stabilized, rates of sexual activity among single women have not declined and are not expected to decline in the future.
- More women are delaying their first marriage, thus leaving them with a proportionately greater part of their reproductive years unmarried.
- Increasingly, delayed marriage has resulted in a decline in marriage before pregnancy and a decline in the number of single pregnant women who marry before birth.

The objective assumes that most births to unmarried women are unintended. While this may have been a valid assumption when the objective was formulated, it is not the case now given different acceptable social behavior and a changing social environment. As more women are choosing single parenthood, social attitudes have become more accepting. The 1982 National Survey of Family Growth (NSFG) collected data on unplanned births to all women in the survey. Unplanned births include both those that were mistimed (wanted births that were conceived before the desired time) and those that were unwanted. Rather than assuming that all births to single women are unintended, the objective could be revised to measure unplanned births to single women using these new NSFG data which can break out "wantedness" by marital status and by age. The objective could also be refined to report "wanted" births to single women by age groups, since there has been differential progress in reducing fertility rates among women aged 19 to 44 as compared to teenagers ages 15 to 18.

Objective g. By 1990, the availability of family planning information and methods (education, counseling, and medical services) to all women and men should have sufficiently increased to reduce by 50 percent the disparity between Americans of different economic levels in their ability to avoid unplanned births.

Baseline In 1976, 57 percent of births that occurred during the previous five years reported by ever-married women with incomes below the poverty level were unplanned compared to 30.6 percent for women with family incomes of 150 percent of poverty level or higher.

Status In 1982, 50.7 percent of births that occurred during the previous five years reported by ever-married women with incomes below the poverty level were unplanned compared to 29.4 percent for women with family incomes of 150 percent of poverty level or higher. (National Center for Health Statistics)

Comment Based on progress to date, it is possible for this objective to be met. Between 1976 and 1982, the disparity addressed in the objective was reduced by 19 percent. The National Survey of Family Growth (NSFG) provides data which can be used to measure this objective by showing the percent of births to all women in the five

years before the survey interview which were unwanted or mistimed at conception, by relationship to the poverty level. These data indicate some progress with a slight decrease in the disparity between the percent of unplanned births by economic status.

In 1981, an estimated 9.5 million low income women were at risk of unintended pregnancy. Of these, 5.5 million (58 percent) received services from organized family planning clinics (3.7 million) or private physicians (1.8 million). Given that available data measure utilization of family planning services, it is unclear how many of the remaining four million low income women did not receive services because they did not have access to them. While some of these women undoubtedly did not have access to services, others may practice natural family planning, obtain their own over-the-counter methods, or have personal reasons for not using contraception.

The measure of this objective could be improved by using NSFG data to compare rates of unintended fertility among all (never-married and ever-married) women by specific income levels (rather then just below poverty or 150 percent of poverty).

PUBLIC AND PROFESSIONAL AWARENESS

Objective h.

By 1990, at least 75 percent of men and women over 14 years of age should be able to describe accurately the various contraceptive methods, including the relative safety and effectiveness of one method versus the others.

Baseline

Baseline data were not available.

Status

In 1982, at least 75 percent of sexually active women knew how 11 of the 13 methods of contraception are used. These 13 methods include condom, pill, intrauterine device, diaphragm, natural family planning, calendar rhythm, suppository, jelly cream, foam, douche, withdrawal, male sterilization, and female sterilization. Only the suppository spermicide and natural family planning were known to less than 75 percent. In fact, the use of four of these methods—female sterlization, condom, pill, and withdrawal—is known to at least 90 percent of the women. Data on what men know about contraceptive methods are not available. (National Survey of Family Growth, NCHS)

Comment

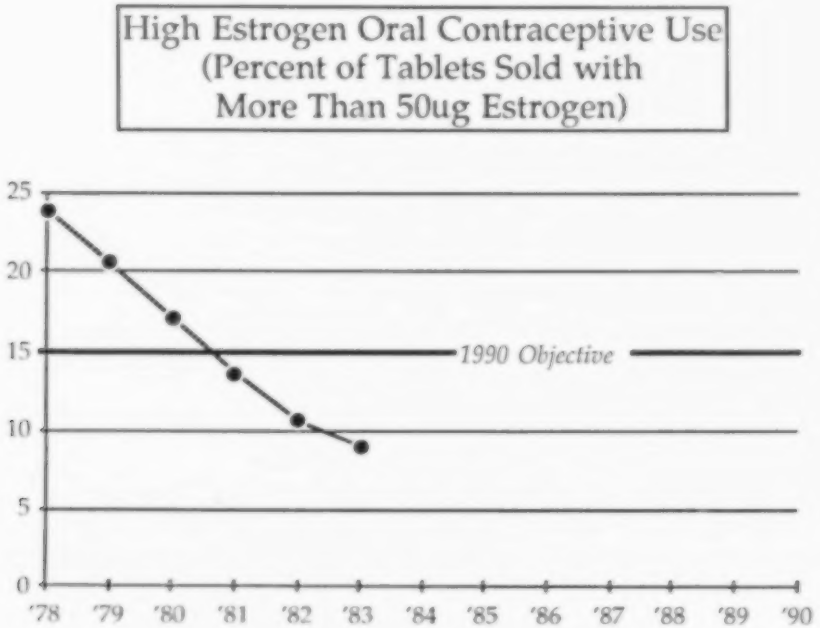
Because there are no data on the knowledge of males about contraceptive methods, it is not possible to predict whether this objective will be met. The National Survey of Family Growth (1982) found that, although knowledge for all groups was high, sexually active teenage girls (15 to 19 years) were less knowledgeable about the use of contraceptive methods than older women. For six of the 13 listed methods, the proportion of knowledgeable teens was less than 75 percent. Among Black teens only three methods were known to as many as 75 percent of the women. Never-married women were somewhat less well informed than ever-married women about every method. The proportion knowing how a given

method was used fell below 75 percent among never-married women for the same two methods as among ever-married women, i.e., natural family planning and suppository.

This objective sets forth a very difficult task of evaluating the effectiveness of contraceptive education, a subject about which no data are currently available. The role of information in the effective practice of contraception remains unclear with serious gaps in understanding of how information is acquired and used in this area. The results of current research may help shed some light. For instance, the National Center for Child Health and Human Development is conducting two research projects regarding linkages between knowledge and effective contraceptive use which should be completed within the next two years. Also, cycle four of the National Survey of Family Growth, to be conducted in 1987, will provide information on the proportion of women who can identify the most and least effective methods of contraception. None of the projects include information on males.

IMPROVEMENT OF SERVICES

Objective i. By 1985, the sales of oral contraceptives containing more than 50 micrograms of estrogen should have been reduced to 15 percent of total sales.



Source: National Prescription Audit, FDA

Baseline In 1978, 23.9 percent of preparations sold contained 50 micrograms of estrogen.

Status In 1983, nine percent of preparations sold contained 50 micrograms of estrogen.

Comment This objective was achieved in 1981 and is now well below the 1985 objective. Research suggests that an estrogen content greater than 50 microgram (mcg) is related to various health problems. And, since the efficacy of lower estrogen oral contraceptives has been substantiated, oral contraceptives containing more than 50 mcg of estrogen may not be necessary. Growing awareness of the problems associated with high dosages of estrogen led to the steady decline in the sales of oral contraceptives with more than 50 mcg of estrogen.

Objective j. By 1985, 100 percent of federally funded family planning programs should have an established routine for providing an initial infertility assessment, either directly or through referral.

Baseline Baseline data were not available.

Status In 1985, 100 percent of federally funded family planning programs, authorized by Title X of the Public Health Service Act, routinely provided initial infertility assessment either directly or indirectly.

Comment This objective has been achieved. Family planning includes both services to prevent unintended pregnancies and services to overcome unintended infertility. These services may be provided by private physicians, private clinics, and hospitals, as well as in clinics supported by a variety of Federal programs (the Social Services Block Grant, Medicaid, the Maternal and Child Health Block Grant). The principal Federal family planning program is supported by Title X of the Public Health Service Act.

Informal reports on the 1990 Objectives received from the Regional Offices of the Department of Health and Human Services indicate that an established routine for providing initial infertility assessment is in place in all Title X agencies. The program requires that infertility services be offered, either directly or through referral, to clients desiring such services. Title X infertility services are categorized by three levels, and all Title X grantees must provide basic Level I infertility services.

- Level I — Initial infertility interview, education, appropriate laboratory testing, counseling, and appropriate referral.
- Level II — semen analysis, assessment of ovulatory function through basal body temperature and/or endometrial biopsy and postcoital testing.
- Level III — more sophisticated and complex services than Level I and Level II.

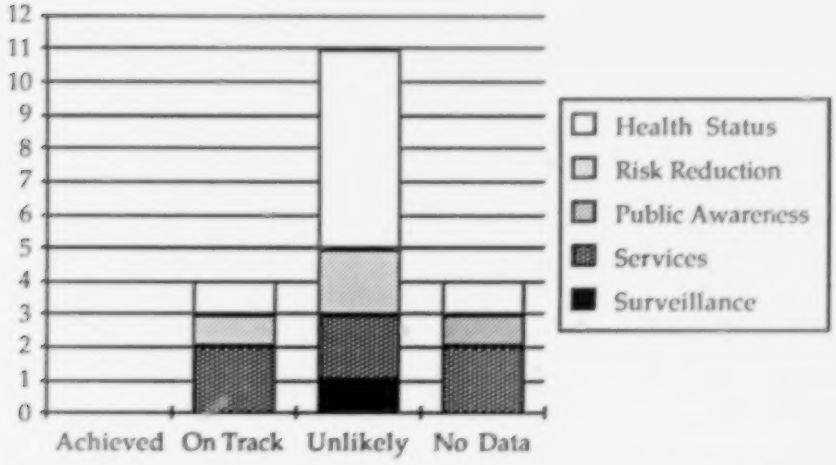
There is, however, no data collection requirement for infertility services in Title X clinics and no way of measuring the infertility services capability of family planning activities funded through other Federal authorities.

Section C PREGNANCY AND INFANT HEALTH

The Pregnancy and Infant Health priority area established objectives calling for reductions in infant mortality, incidence of low birth weight and incidence of certain preventable complications of pregnancy and delivery. These objectives measure health status and risk reduction efforts which are fundamental elements of the overall health of the Nation. During this century, the extraordinary improvements in life expectancy have been largely a function of reductions in infant mortality rates. Great strides occurred as a result of improved ability to control the infectious diseases that threatened young lives.

That progress has now been substantially accomplished, and the declining mortality rates reflect that fact. No indicators of public health offer greater priority than slowing declines in annual infant mortality and low birth weight rates and the discrepancies between these rates for Black and White babies. Despite the summaries of progress contained in the midcourse review, which depict modest progress in the first years of this decade, an analysis of trends through 1990 provides the unsettling—and challenging—conclusion that many of the objectives

Status of Pregnancy & Infant Health (19 Objectives)



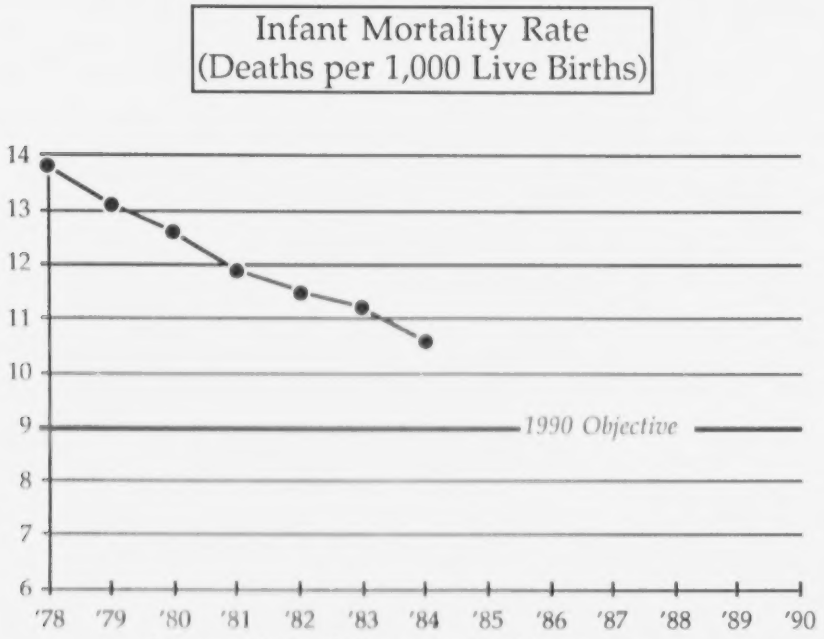
will not be achieved, given current rates of progress. Acceptance of the challenge to reach a greater portion of pregnant women with appropriate and timely prenatal care and educate them about behavioral risks that can cause problems for their babies and themselves has become a priority public health concern at the Federal level and in States across the nation.

IMPROVEMENT OF HEALTH STATUS

Objective a. By 1990, the national infant mortality rate should be reduced to no more than nine deaths per 1,000 live births.

Baseline In 1978, the infant mortality rate was 13.8 per 1,000 live births.

Status In 1984, the infant mortality rate was 10.6 per 1,000 live births (provisional data).



Source: National Center for Health Statistics (1983 & 1984 Provisional data)

Comment Based on progress to date, achievement of this objective is questionable. Applying the 1983-85 rate of decline (1.9 percent) to the final 1983 figure yields a projected rate in 1990 of 9.2 per 1,000. Preliminary data from the U.S. 1980 birth cohort

reveals only 10 percent of the overall reduction in infant mortality between 1960 and 1980 is due to a more favorable birth weight distribution. In fact, the decline in the rate of low birth weight has been relatively slow; the rate of very low birth weight appears to be unchanged. This is a major source of concern since, of all infants who die, about two-thirds are low birth weight. Of these, 67 percent are very low birth weight.

Sudden Infant Death Syndrome (SIDS) is the most important cause of postneonatal mortality. In 1982, the rate for SIDS was 132.2 per 100,000 live births, accounting for more than a third of postneonatal deaths. Other factors known to have negative impact on infant mortality include the continuing high rate of teenage pregnancy and barriers impeding access to prenatal, perinatal and infant care, particularly for high risk groups.

In addition, two recent developments, the escalating costs of malpractice insurance and changes in methods of financing health care for the medically indigent, must be monitored for their potential to affect efforts to reduce infant mortality. In a 1983 nationwide survey by the American College of Obstetricians and Gynecologists, 17.6 percent of the obstetricians reported that they had decreased their level of high risk obstetrical care, and another 9.1 percent reported they had ceased to practice obstetrics. Further, in July 1985 the American College of Nurse-Midwives was notified of the cancellation of liability insurance policy for its membership placing about two thousand of these practitioners in jeopardy of being unable to practice.

With respect to financing care, the Alan Guttmacher Institute found that over 25 percent of women in the primary childbearing age range of 16 to 24 years, who account for 40 percent of all births, have no health care coverage. Medicaid covers only 43 percent of these women with family incomes below $5,000, and 30 percent of those with incomes between $5,000 and $10,000. Trends suggest that the absence of adequate insurance coverage may be complicated by, a decline in charity care. For example, the volume of Hill-Burton uncompensated service obligations will drop by 50 percent in the next decade.

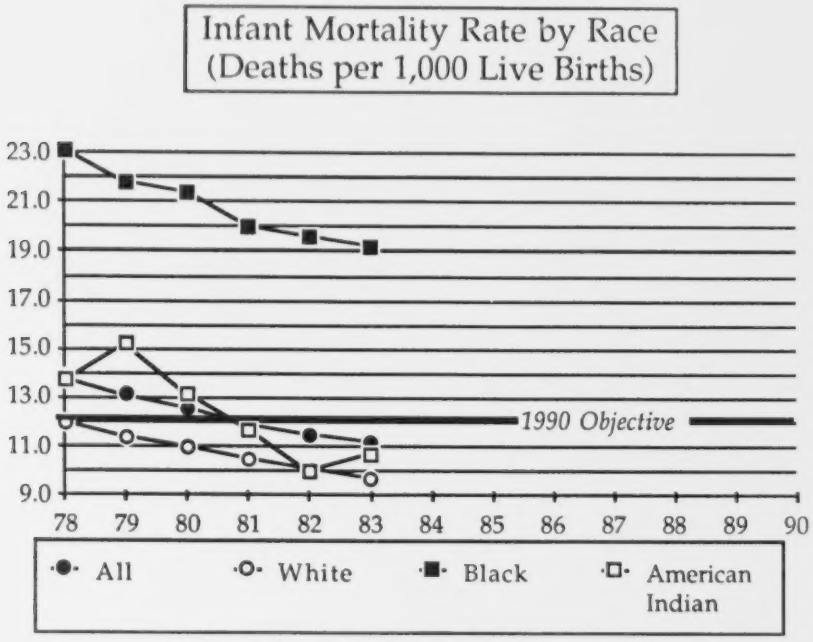
Given these and other barriers to progress, it is clear that further reduction of infant mortality rates will require a concerted national, State, and local effort. There are some initiatives underway which should help to achieve the 1990 Objectives, including the Healthy Mothers, Healthy Babies Coalition, recently expanded Medicaid coverage for pregnant mothers and children, and Federal regional office-sponsored Infant Mortality Conferences which resulted in the development of State action plans tailored to specific needs of each region. Additional progress is needed including: research to identify the cause of SIDS, as well as the "best practices" for maternal and child care; promotion of health care including risk assessment to identify health problems and health behaviors best addressed before pregnancy (e.g., smoking and poor nutritional status); and establishment of a national system of linked birth and death records to monitor infant mortality tends.

Objective b. By 1990, no county and no racial or ethnic group of the population should have an infant mortality rate in excess of 12 deaths per 1,000 live births.

Baseline In 1978, the rate for Whites was 12.0 per 1,000; for Blacks 23.1 per 1,000; for American Indians 13.7 per 1,000; for Hispanics, the rate was not available separately.

Status

In 1983, the rate for Whites was 9.7 per 1,000; for Blacks 19.2 per 1,000; in 1982, the rate for Indians and Alaska natives was 11.9 per 1,000; and for Hispanics, rates were not available. (Although there are no national data for Hispanics, data from California and Texas suggest that this rate is already below 12.)



Source: National Center for Health Statistics

Comment

It appears that this objective has already been met for all racial and ethnic groups other than Blacks. Based on progress to date, it appears unlikely that the objective will be met in the aggregate. Applying the 1983-85 annual rate of decline of 1.9 percent per year to the final 1983 rate results in a projection for 1990 for Blacks of 16.8 per 1,000.

The marked gap in the infant mortality rate between Whites and Blacks mirrors the over two-fold difference in the rate of low birth weight between the two ethnic groups and the more than two-fold difference in very low birth weight between Whites (0.93 percent) and Blacks (2.55 percent).

Black births are more concentrated in the high risk groups. In 1983, 25.0 percent of all Black births were to teenagers, compared to 12.0 percent of White births, and 19.0 percent of Hispanic births. Black mothers are also more likely to receive late prenatal care and to have less education.

Further reduction of Black infant mortality rates will require a concentrated national, State and local effort, with high priority given to reaching Black women of childbearing age with information, better access to prenatal care and other types of programs that address their barriers to care.

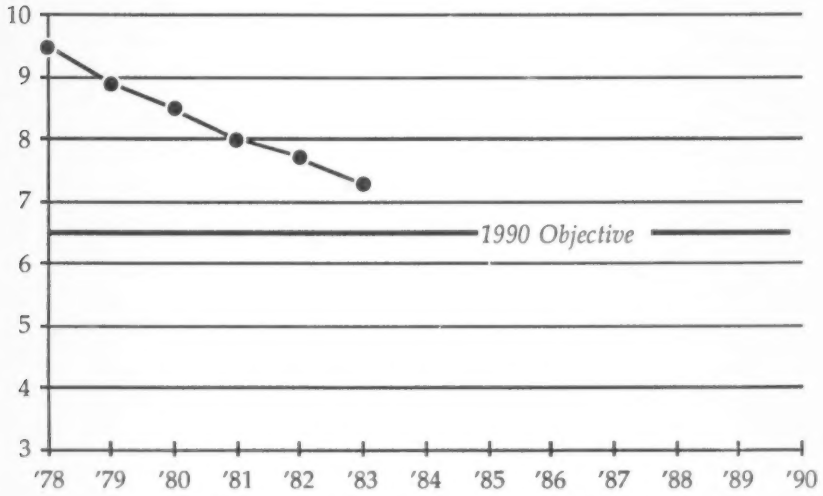
Because of the difficulty associated with interpreting infant mortality rates in those counties with small numbers of births each year, a full tracking of this objective has not been possible and an appropriate revision would delete the reference to counties.

Objective c. By 1990, the neonatal death rate (deaths of all infants up to 28 days old) should be reduced to no more than 6.5 deaths per 1,000 live births.

Baseline The 1978 rate was 9.5 per 1,000 live births.

Status The 1983 rate was 7.3 per 1,000 live births.

Neonatal Mortality Rate
(Deaths per 1,000 Live Births)



Source: National Center for Health Statistics (1983 Provisional Data)

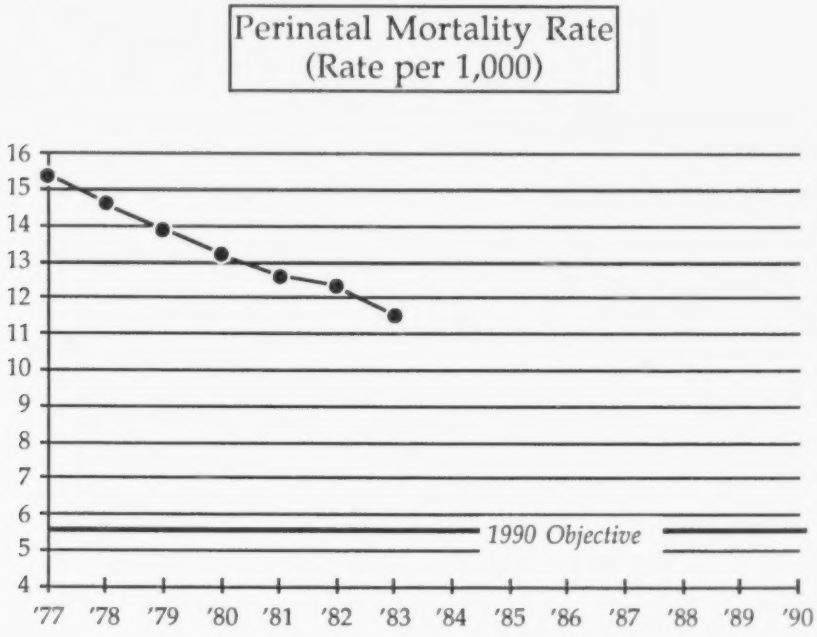
Comment Based on progress to date, it appears that this objective will be met even if neonatal death rates follow the slowing down trend of the overall infant mortality rates. Development of high technology perinatal intensive care units and transport programs has made a major contribution to the reduction of neonatal mortality. However, the promise of these technological developments in lowering the neonatal mortality rate is hindered by the same factors that are slowing progress in the overall infant mortality rate, including continued high rates of low birth weight babies and teenage pregnancies.

Objective d. By 1990, the perinatal death rate should be reduced to no more than 5.5 per 1,000.

NOTE: The perinatal death rate is total deaths (late fetal deaths over 28 weeks gestation plus infant deaths up to seven days old) expressed as a rate per 1,000 live births and late fetal deaths.

Baseline The 1977 rate was 15.4 per 1,000.

Status The 1983 rate was 11.5 per 1,000.



Source: National Center for Health Statistics

Comment

Based on progress to date, it appears unlikely that this objective will be met. Based on a log-linear regression of 1978-1983 rates, the projected 1990 perinatal mortality rate will be 8.4 per 1,000. The development of technology-intensive perinatal care centers has contributed to the reduction of perinatal loss. Those factors which impede progress on this objective are those that impede progress for many of the other pregnancy and infant health objectives.

Important factors in further progress are: improved access to, and quality of, maternal and infant care; provision of prenatal care services in sites most frequently used by high-risk indigent women (e.g., community health centers, maternal and infant care projects, hospital outpatient departments and health department clinics); and research to identify causes of perinatal loss.

As a special note, review of the working paper which formed the basis of the objectives suggests that there may have been some confusion regarding the definition of the perinatal mortality rate. In the working paper reference is made to infants and fetuses weighing 1,000 grams or more. The standard rates used in the United States define perinatal mortality relative to gestation of fetal deaths and age of infant deaths regardless of birth weight. Furthermore, it is not clear why the objective ignores fetal deaths of less than 28 weeks gestation. In 1981, about one-third of all reported fetal deaths were between 20 and 27 weeks gestation. To avoid confusion and broaden the scope to include all reported fetal loss, this objective could appropriately be modified to cover fetal deaths of 20 weeks or more gestation. (Since there is an objective for neonatal deaths, there is no need for expressing the objective in terms of perinatal mortality.) In 1983, the fetal death rate was 8.4 per 1,000, an average decline of 2.4 percent per year since 1978.

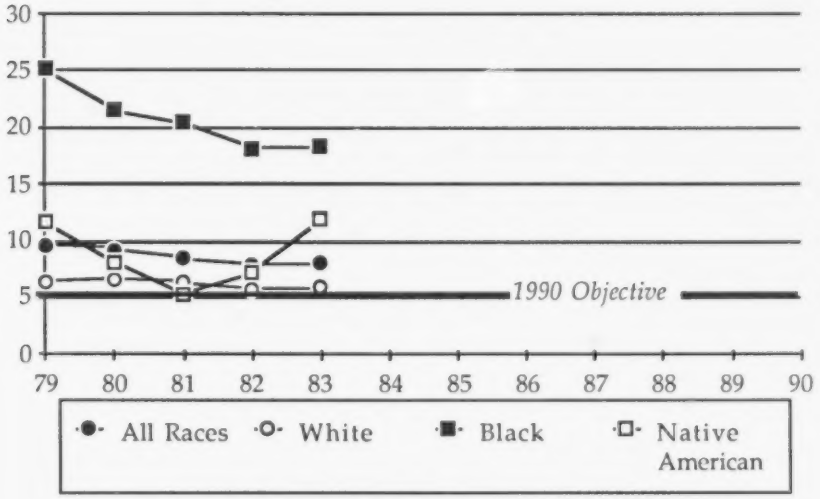
Extrapolating this trend to 1990 yields a projected fetal death rate of 7.1 per 1,000. The objective could then read: By 1990, the fetal death rate (number of fetal deaths of 20 weeks or more gestation per 1,000 live births plus fetal deaths) should be reduced to no more than seven deaths per 1,000.

Objective e. By 1990, the maternal mortality rate should not exceed five per 100,000 live births for any county or for any ethnic group (e.g., Black, Hispanic, American Indian).

Baseline In 1978, the overall rate was 9.6; the rate for Blacks was 25.0, for Whites, 6.4; for American Indians, 12.1; for Hispanics, data were not available.

Status In 1983, the overall rate was 8.0. The rate for Blacks was 18.3, for Whites, 5.9; for Native Americans, 12.0 (1981); for Hispanics, data were not available.

Maternal Mortality Rate by Race
(Deaths per 100,000 Live Births)



Source: National Center for Health Statistics

Comment Based on progress to date, it appears unlikely that this objective will be met. If the 1979-83 rate of decline continues, the 1990 projected rate for Blacks would be 10.0 per 100,000 live births. Maternal mortality has declined at the rate of 5.0 percent per year between 1979-1983. Although the Black rate was triple the White rate in 1983, it has been declining more rapidly (7.7 percent vs. 3.0 percent between 1979-1983.)

Many of the same factors affecting infant mortality influence maternal mortality. Among the more important are the continuing high rate of teenage pregnancy and late entry into prenatal care, barriers impeding access to prenatal and perina-

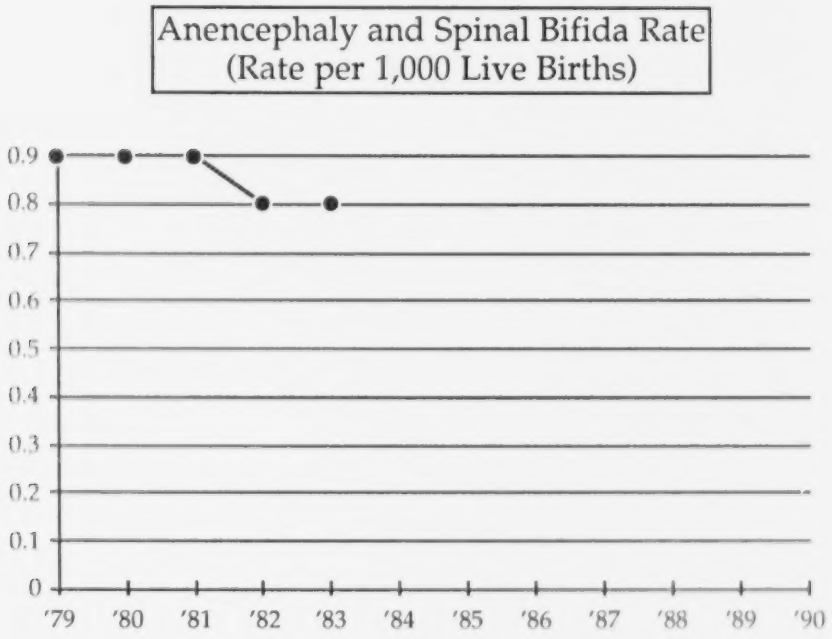
tal care, poorly developed "systems" of care with formal referral mechanisms so that high-risk women do not receive care appropriate to their needs, and the continuing high rate of unintended births.

The development of perinatal care centers with high technology, efforts to attract providers to manpower shortage areas, and a growing national awareness of the need to improve pregnancy outcomes have all contributed to the improved maternal mortality rate.

Special efforts to reach pregnant teenagers and pregnant Black women are needed. Current State and local efforts to remove barriers to prenatal and perinatal care should be encouraged and supported. Programs that encourage planning for pregnancy so that each pregnancy is wanted and women and their families are well prepared for childbirth and child rearing should contribute to progress in this area. Services should include risk assessment and health education to identify health problems or health behaviors detrimental to maternal health during pregnancy which can be addressed before pregnancy.

More than two million births are needed to estimate a maternal mortality rate with 95 percent confidence interval of + or - 15 percent around the observed rate. For this reason, it does not seem appropriate to specify a numerical objective for counties. Even at the national level, the objective for ethnic groups could better be stated in terms of three or five year averages. Therefore, this objective could appropriately be revised as follows: By 1990, the three-year-average maternal mortality rate should not exceed five per 100,000 live births for any racial or ethnic group (e.g., Black, Hispanic, Native American).

Objective f. By 1990, the incidence of neural tube defects should be reduced to 1.0 per 1,000 live births.



Source: Centers for Disease Control

Baseline

In 1979, the rate was 1.7 per 1000. (The rate in 1979 for anencephaly and spina bifida, two major forms of neural tube defects, was .9 per 1,000).

Status

The 1983 rate for anencephaly and spina bifida was .8 per 1,000. Rates which include all forms of neural tube defects have not been tracked.

Comment

Based on proxy data related to the two major forms of neural tube defects, progress toward achievement of this objective has been very slow and achievement by 1990 is uncertain. The cause(s) of neural tube defects is not known, making primary prevention impossible. Maternal serum alpha-fetoprotein screening kits for prenatal detection of neural tube defects have been approved by the Food and Drug Administration and are becoming widely available. In May 1985, the American College of Obstetricians and Gynecologists issued a statement recommending that prenatal patients be advised of the test.

Emphasis should be placed on determining the cause(s) of neural tube defects. Research is needed, including randomized clinical trials to determine whether or not periconceptional vitamin supplementation will lower the incidence. In addition, a better understanding of the contribution of environmental factors is needed. There is disagreement about the classification and definition of neural tube defects. The Centers for Disease Control's Birth Defects Monitoring Program tracks the incidence of anencephaly and spina bifida, the most common of these defects. Lack of agreement about the definition and lack of a reporting system for all such defects makes overall assessment of progress impossible.

An appropriate revision, focusing just on anencephaly and spina bifida, would be: By 1990, the incidence of anencephaly and spina befida should be reduced to 0.6 per 1,000 live births. (In 1979, the rate was 0.9 per 1,000 according to the Centers for Disease Control's Birth Defects Monitoring Program.)

Objective g.

By 1990, Rhesus hemotylic disease of the newborn (RhHDN) should be reduced to below a rate of 1.3 per 1,000 births.

Baseline

In 1977, the rate was 1.8 per 1,000.

Status

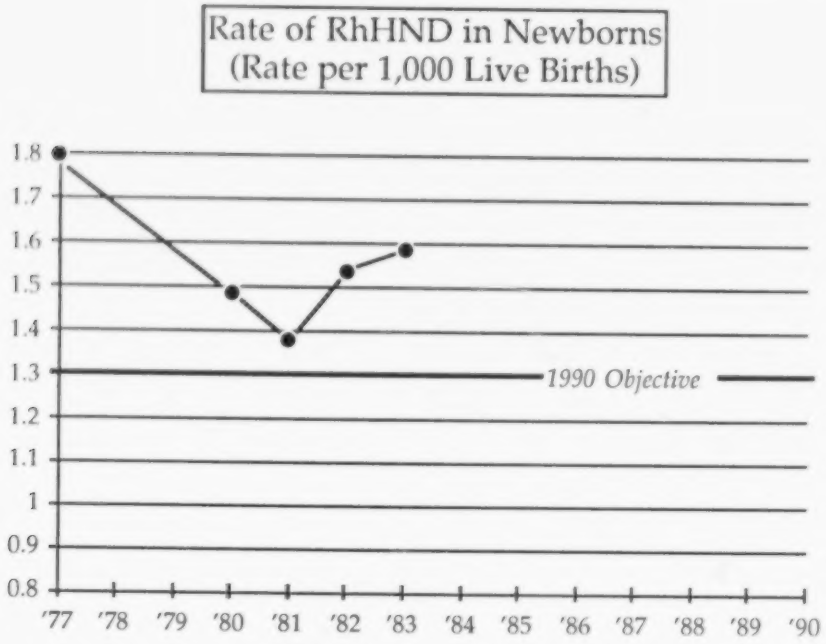
In 1983, the rate was 1.6 per 1,000.

Comment

Based on progress to date, it appears unlikely that this objective will be met. A projection based on current rates would be 1.5 per 1,000 live births by 1990. The risk for RhHDN varies markedly by race and the number of times a woman has been pregnant. Thirteen percent of Whites, six percent of Blacks, and less than one percent of Asians and American Indians are Rh-negative. Because an unsensitized Rh-negative woman risks sensitization with each pregnancy, the more pregnancies a woman has had, the higher risk of sensitization. By summarizing the nation's experience into a single figure, the national crude rate may conceal increases or decreases among races or levels of gravidity. Analysis of rates by race and gravidity would help to identify groups with elevated rates, towards whom prevention efforts should be focused. The data needed for these rates, however, are not routinely collected by any State. Their absence impedes progress toward achieving the 1990 target because high-risk groups cannot be readily identified.

Because sensitization is a silent event, it will not usually be detected before the occurrence of a subsequent Rh-positive pregnancy. The subsequent pregnancy

may not occur until several years after sensitization, when it may be very difficult to identify past events that caused sensitization. Without knowledge of the events responsible for maternal sensitization, intervention strategies cannot be planned.



Source: Centers for Disease Control

Although most women are sensitized at delivery, about one percent of Rh-negative women are sensitized before they deliver their first child. Sensitization occurs during the third trimester when Rh-positive blood from the fetus escapes into the circulation of the Rh-negative mother. The causes of fetal-maternal bleeding are unknown. Administration of Rh immune globulin during the third trimester protects the mother from becoming sensitized by these bleeds. Routine administration of Rh immune globulin to all Rh-negative women during the third trimester, however, is not cost-effective. Selective administration to women at high risk of sensitization probably would be costeffective. Studies to identify the characterization of high risk women need to be conducted.

Three measures that would facilitate progress are: (1) routine collection at either the national or State level of race- and gravidity- specific incidence rates among Rh-negative women; (2) descriptive and case control studies to identify causes of sensitization, particularly among young women; and (3) epidemiologic and laboratory studies to identify preventable causes of third-trimester sensitization.

Objective h. By 1990, the incidence of infants born with the fetal alcohol syndrome should be reduced by 25 percent.

Baseline In 1977, the rate for fetal alcohol syndrome was one per 2,000 births, or approximately 1,650 cases.

Status National data on the current status are not available. The baseline measure for this objective is limited in value, and no dependable alternate national measures are available. The only data available are from the Birth Defects Monitoring Program at CDC, a voluntary reporting system which monitors approximately 25 percent of all births. These data suggest the rate for fetal alcohol syndrome in 1985 was 1.5 to 2.0 per 10,000 births.

Comment Because there are no valid baseline or current national data to measure this objective, it is not possible to predict whether it will be met. The National Hospital Discharge Survey, the source of the baseline data, is not adequate for establishing a national objective. Estimation of the incidence of fetal alcohol syndrome in the past has been extremely difficult, in part because there was no specific International Classification of Diseases (ICD) code for it. Without such a code, it is difficult to obtain frequencies of incidence from the various national surveys, most of which rely upon the ICD codes for reporting purposes. Therefore, past estimates were usually based upon case studies which produce dramatically varying estimates (e.g., from one per 600 to one per 5,000). The rate cited as the baseline figure is such a rate.

To track progress toward achieving this objective, new data sources should be developed. Both the Centers for Disease Control and the National Institute on Alcohol Abuse and Alcoholism are working to establish more useful measures of incidence of fetal alcohol syndrome. Obtaining a comparable figure for 1990 may be made easier because of the assignment of a specific code to fetal alcohol syndrome for inclusion in the ICD-9. This code will enable improved collection of incidence data on a national basis. However, as research and information on fetal alcohol syndrome increase there may be an increase in reporting, especially now that a specific code is available. It may turn out that current estimates are extremely conservative, therefore reducing the likelihood of attaining the 1990 objective.

To reduce the incidence of fetal alcohol syndrome, public and professional prevention programs have been developed. Public awareness campaigns are warning women about the dangers of alcohol consumption during pregnancy. For example, the "Healthy Mothers, Healthy Babies Coalition" at the national, State and local levels has worked to build awareness among women in child bearing years and health professionals about the importance of healthful lifestyles, including alcohol abstinence during pregnancy. The Dietary Guidelines of the U.S. Departments of Health and Human Services and Agriculture emphasize the risk of alcohol consumption, and advise against it during pregnancy. Several cities have adopted measures requiring point-of-sale warning signs advising that alcohol consumption during pregnancy may lead to fetal alcohol syndrome.

The medical literature on fetal alcohol syndrome has increased substantially during the past five years. Many curricula for medical and other health professions schools now include fetal alcohol syndrome related information. Professional health care organizations are now advising physicians and other practitioners that the safest choice for pregnant women is not to consume alcohol.

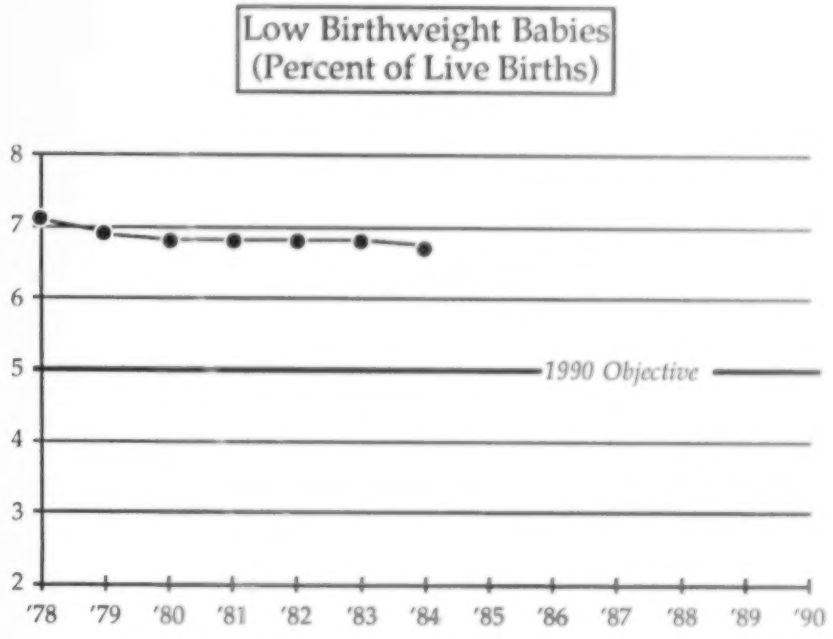
To track this objective, useful measures of incidence are needed. To help achieve the objective itself, public and professional education campaigns about fetal alcohol syndrome and the dangers of consuming alcohol while pregnant should continue.

RISK REDUCTION

Objective i. By 1990, low birth weight babies (2,500 grams and under) should constitute no more than five percent of all live births.

Baseline In 1978, the proportion was 7.1 percent of all births.

Status In 1984, the proportion was 6.7 percent of all births.



Source: National Center for Health Statistics

Comment Based on progress to date, it appears unlikely that this objective will be met. Applying 1978-1983 trends, the projected rate will be 6.3 percent of all births in 1990. The low birth weight rate has declined by an average of 0.8 percent per year between 1978 and 1983. All of the decline has been in the moderate low birth weight groups (1,500 - 2,499 grams). The rate of very low birth weight (under 1,500 grams) has remained relatively constant.

Understanding of the basic causes of preterm labor and intrauterine growth retardation is limited, making prevention difficult. A number of factors associated with low birth weight are known, however, and can be used to identify women who are at risk of delivering low birth weight infants. These include late entry into prenatal care; teenage pregnancy; unintended pregnancy; high parity; older maternal age; previous low birth weight or other adverse reproductive outcome; poor health habits before and during pregnancy, especially smoking, alcohol consumption and drug abuse; medical conditions such as poor obstetrical history and chronic diseases; and being unmarried. Thus, some intervention is possible.

A number of activities at the national, State and local levels address the problem of low birth weight. The Secretary of Health and Human Services has launched a

major initiative to inform women of the hazards of smoking during pregnancy. The Office of the Assistant Secretary for Health has established the Low Birth Weight Prevention Work Group, comprised of representatives from several Public Health Service agencies and the Health Care Financing Administration. Its mission is to analyze and recommend options for reducing the incidence of low birth weight to the Assistant Secretary. In addition, recent changes to Medicaid legislation will expand coverage to 180,000 low income women.

Additional work is needed in several areas if the objective is to be met. First, research such as that supported by the National Institute on Child Health and Human Development must determine the etiology of low birth weight related to preterm labor and birth or intrauterine growth retardation. Planning for pregnancy should be incorporated into health programs serving women and families of child-bearing age. Services should include risk assessment for health problems and health behaviors which may be addressed before pregnancy, i.e., chronic illnesses, smoking, drinking, substance abuse, inadequate weight for height, poor nutritional status, susceptibility to rubella and other infections, and poor obstetrical history. Health education should be a part of planning for pregnancy, to improve knowledge about reproduction, contraception, pregnancy, and major factors affecting poor birth outcome, including low birth weight.

Since this objective was framed in 1978, the definition of low birth weight has changed slightly. An appropriate revision would be: By 1990, low birth weight babies (under 2,500 grams) should constitute no more than five percent of all live births.

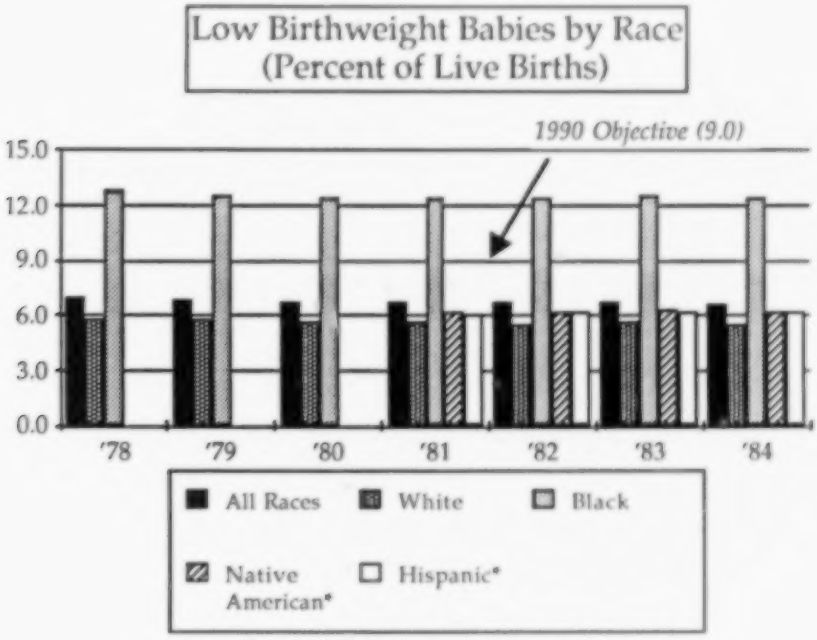
Objective j. By 1990, no county and no racial or ethnic group of the population (e.g., Black, Hispanic, American Indian) should have a rate of low birth weight infants that exceeds nine percent of all live births.

Baseline In 1978, the rate for Whites was 5.9 percent, for Indians 6.7 percent, and for Blacks 12.9 percent; rates for Hispanics were not separately available; rates for some other nations are five percent and less.

Status In 1984, all ethnic and racial groups, except Blacks, had a low birth weight rate below nine percent (White, Mexican, Cuban, Central and South American, Chinese, Japanese, Filipino, and American Indian). The low birth weight rate for Blacks was 12.4 percent in 1984.

Comment Based on progress to date this objective will be met for each racial or ethnic group except for Blacks. Based on 1978-1983 trends, the projected rate for Blacks will be 12.1 percent in 1990. The approximate 2:1 low birth weight ratio between Blacks and other ethnic groups has remained fairly constant for the past twenty years. The reasons for this difference are unclear. Blacks are over-represented in high risk groups. For example, in 1983, 25 percent of all Black births were to teenagers, compared to 12 percent of White births and 19 percent of Hispanic births. When the variables known to contribute to low birth weight are held constant, however, Blacks are still at higher risk of delivering low birth weight infants. Additional research is needed to determine the reasons for higher low birth weight rates for Blacks. Special efforts to assure accessible and acceptable services for Black women may be necessary.

Because of the difficulty associated with obtaining low birth weight rates for counties, it would be appropriate to delete the reference to counties in this objective.



Source: National Center for Health Statistics
**No Data Available 1978 - 1980*

Objective k. By 1990, all birthing centers, physicians, and hospitals should ensure that at least 50 percent of newborns return home in certified passenger carriers.

Baseline Baseline data were not available.

Status No national data are available on infants leaving hospitals in safety seats. An ongoing National Highway Traffic Safety Administration (NHTSA) survey found 60.4 percent of infants observed to be in safety seats; only 41 percent of these safety seats were properly secured.

Comment Based on progress to date and the existence of child safety restraint legislation in all States plus the District of Columbia, it is likely that this objective will be met. In fact, it is possible that the objective has been met already. In spite of the universal legal mandate, however, it appears that a substantial portion of child safety seat users may be anchoring the seats incorrectly when placing them in their cars, and a majority may not be providing correct safety restraint when placing their children in the seats.

The legal mandates are supported by programs of business, professional and community organizations to inform the public, encourage proper installation of safety seats, and subsidize their use. A number of companies in the infant prod-

ucts industry produce literature for public distribution detailing the proper use and common misuse of infant passenger seats. The American Academy of Pediatrics has expanded its "First Ride a Safe Ride" program to "Every Ride a Safe Ride" and has included safety restraint information as part of its The Injury Prevention Program (TIPP) patient education materials distributed to all pediatricians and health departments across the country. Child safety seat loaner programs are in existence in every State in the country. The programs are usually administered by community voluntary and service organizations or hospital staffs. For example, in one State over 70 percent of hospitals have loaner programs, with over 15,000 seats available for loan. Combined with an educational component, these programs resulted in a tripling of usage in hospitals surveyed.

Simplification of safety seat design is in process. With increased ease of use, presumably the problems of incorrect installation will be reduced. Including a safety seat as part of the perinatal insurance care package, and including education on use of safety seats in the prenatal period will help establish a favorable environment for usage once the baby is born. Continued educational campaigns aimed at both adults and children will have some impact on the situation. Adaptation of child safety seat usage as a requirement for hospital discharge will further reinforce the environment.

PUBLIC AND PROFESSIONAL AWARENESS

Objective 1. By 1990, 85 percent of women of child-bearing age should be able to choose foods wisely (state special nutritional needs of pregnancy) and understand the hazards of smoking, alcohol, pharmaceutical products and other drugs during pregnancy and lactation.

Baseline Baseline data were not available.

Status Data are not available to indicate progress in meeting this objective.

Comment Because there is no consistent data collection in this area, it is unlikely that it will be possible to know whether this objective is met.

Some information on smoking and drinking during pregnancy is available. The National Center for Health Statistics' 1980 National Natality Survey and 1980 National Fetal Mortality Survey, based on probability samples of live births and late fetal deaths, studied maternal smoking and drinking before and during pregnancy. Based on a sample of 4,405 married mothers of live births, the data indicate that reductions in smoking and drinking occur when pregnancy is confirmed. Before pregnancy, 30.9 percent of the mothers smoked and 55 percent drank. During pregnancy, these figures were reduced to 25.5 percent who smoked and 39.2 who drank.

A significant number of State and national organizations have educational programs targeted to pregnant women on the subjects of nutrition, smoking, alcohol and drug use; many of these have begun during the last several years. Because of

current national attention to these topics, it is anticipated that the level of effort will increase, rather than decrease, between 1985 and 1990.

Data on behavioral risk factors, especially smoking and alcohol consumption, are becoming available through the CDC Behavioral Risk Factor Surveillance System for nonpregnant women, 18 years of age and older. Some data on smoking during pregnancy can be made available from the CDC Pregnancy Nutrition Surveillance System. However, that system focuses on low-income women and is not a random sample. Because scientific evidence of need for proper nutrition and the risks of alcohol and smoking during pregnancy is much greater than the evidence for risks from drug use, the public awareness level of drug-related hazards cannot be expected to be as great as for other subjects.

IMPROVEMENT OF SERVICES

Objective m. By 1990, virtually all women and infants should be served at levels appropriate to their need by a regionalized system of primary, secondary and tertiary care for prenatal, maternal, and perinatal health services.

Baseline In 1979, approximately 12 percent of births occurred in geographic areas served by such a system.

Status Data are not available to measure the progress made in achieving this objective.

Comment Based on the lack of data for tracking progress on this objective, it is impossible to know whether it will be achieved. Limited data are available to measure the degree of regionalization for prenatal, maternal and perinatal health services. Of the States that participated in the Improved Pregnancy Outcome (IPO) Projects, many have reported a substantial increase in the utilization of perinatal centers for delivery and subsequent care of high-risk and especially low birth weight infants. Most regional perinatal centers in every IPO State for which data exist—when a year in the middle 1970's is compared to 1981 or 1982—report nearly a doubling of maternal-fetal or neonatal transports.

The lack of data to assess progress toward meeting the objective and the inability to clearly define and measure the effectiveness of regionalization is a major problem. An integrated quality health record system is needed to permit integration of information from prenatal, maternal and perinatal systems so that improved outcomes can be documented.

Other factors contributing to the lack of progress include maldistribution of medical care providers, lack of outreach and education efforts and economic factors, such as lack of third-party coverage.

Two relatively new developments whose effects on the regionalization of perinatal care are as yet unclear are the rising cost of malpractice insurance and changes in hospital reimbursement methods.

Some actions have been taken which will tend to support provision of regionalized perinatal services. The Deficit Reduction Act of 1984 which expands Medic-

aid coverage for pregnant women and children is expected to extend coverage by 1986 to about 180,000 low-income pregnant women and 95,000 infants under the age of one year. States have also expanded their existing State-funded indigent health care programs and seem to be emphasizing maternity care. Other actions have been directed at assisting providers which suffer the financial consequences of providing a substantial level of uncompensated care to the medically indigent.

Continuing attention to financing mechanisms will be required. State and local efforts to address these problems should be encouraged. Additional public and provider education is needed to facilitate utilization of regionalized systems and to focus attention to the community and the primary level of care.

Several States and organizations are redirecting resources toward outreach efforts for early risk assessment. By emphasizing health promotion activities, the need for transport of high-risk patients will decrease, leading to better outcomes for mothers and newborns; and at the same time freeing up resources to fund more effective outreach and educational efforts.

The development of integrated data systems should be promoted and measures of regionalization defined. In addition consideration should be given to correlating types of facilities where births occur with birth weight and outcome of pregnancy, including fetal death. Standard guidelines for identifying those mothers and infants who require transfer to a secondary or tertiary care center also should be developed. Further, research programs need to be instituted that will provide information necessary to evaluate the impacts of regional prenatal, maternal, and perinatal health services on health outcomes and cost of care.

Objective n. By 1990, the proportion of women in any county or racial or ethnic group (for example, Black, Hispanic, American Indian) who obtain no prenatal care during the first trimester of pregnancy should not exceed 10 percent.

Baseline In 1978, 21.8 percent of White mothers, 39.8 percent of Black mothers, 43.7 percent of American Indian mothers, and 43.0 percent of Hispanic mothers received no prenatal care during the first trimester of pregnancy.

Status In 1984, 20.4 percent of White mothers, 37.8 percent of Black mothers, 40 percent of American Indian mothers, and 38.5 percent of Hispanic mothers received no prenatal care during the first trimester of pregnancy.

Comment Based on progress to date, it appears unlikely that this objective will be met. Based on the trend between 1978 and 1982, by 1990, the percentage of women receiving prenatal care will be 78.3 percent of all women, 81.4 percent for White women, 64.9 percent for minority women. Four States are projected to meet or exceed the 1990 goal for White women, but none is expected to meet or exceed the goal for minority women. Examination of the data for the years 1978-82 reveals that there has been virtually no change in the proportion of mothers who begin prenatal care during the first trimester for four consecutive years. The percentage of babies born to Black women who begin prenatal care early actually declined slightly from 1980 to 1982.

Teenagers have particularly low rates of early prenatal care. Between 1980 and 1982, the percentage of babies born to teenagers receiving prenatal care in the first trimester declined. In 1982, about 53 percent of Black pregnant teenagers and 42 percent of White pregnant teenagers failed to obtain early prenatal care.

Barriers to access to early prenatal care are: the high costs for delivery and prenatal care; lack of maternity care providers; inadequate transportation and child care services; poorly located sites for delivery of care; and the systemic inadequacy in recruiting hard-to-reach women. Other factors that have been reported as responsible for women's failure to obtain early prenatal care are: lack of information about the importance of early care; dissatisfaction with hospitals and health care providers; reduced funding levels for Federal programs; regional pockets of unemployment, which increased the number of indigent pregnancies; and the number of physicians discontinuing obstetrics practice because of the prohibitive cost for medical liability insurance. Poor women are twice as likely as higher income women to receive little or no care during their pregnancies (and they are also twice as likely to give birth to low birth weight babies). A number of national, State and local activities addressing access to prenatal care are underway. The Deficit Reduction Act of 1984 requires that all States provide Medicaid coverage for first time pregnant women who would be eligible if the child were born and pregnant women in two-parent families with an unemployed principal earner. The Congressional Budget Office estimates that Medicaid coverage will be extended to about 180,000 low-income pregnant women.

Maximum use of the Medicaid program should be promoted, i.e., (a) Medicaid Section 2175 waiver authority for primary care management to provide prenatal, maternal and perinatal services to pregnant women and newborns eligible for medically needy benefits; (b) Medicaid's EPSDT program to finance an enriched package of services for pregnant teenagers; and (c) Medicaid's expanded coverage for pregnant women and newborn infants.

There should be efforts to increase prenatal care services in sites most frequently used by high risk indigent women like community health centers, maternity and infant care projects, hospital out-patient departments and health departments. Certified nurse-midwives and nurse practitioners should be used to fill gaps in areas with insufficient medical care providers. The use of outreach services to bring hard-to-reach women into early prenatal care should be emphasized. Concerted efforts should be focused on the issues surrounding the malpractice issues in childbirth (e.g., encouraging more obstetrician- gynecologists to care for high-risk Medicaid patients) in an effort to identify workable solutions to the problems. Research should be promoted to examine the behavioral aspects and contributing factors associated with the initiation of prenatal care.

Objective o. By 1990, virtually all pregnant women at high risk of having a fetus with a condition diagnosable *in utero* should have access to counseling and information on amniocentesis and prenatal diagnosis as well as therapy as indicated.

Baseline In 1978, about 10 percent of women 35 and over received amniocentesis. Baseline data were unavailable for other high risk groups.

Status There are no existing national data on women in high risk categories who have received counseling and/or prenatal diagnosis.

Comment Based on the lack of a system to collect data as well as the lack of knowledge about how many women are in the high risk category, it is impossible to predict whether this objective will be met. The most easily identified at risk group are women over age 35. There is currently no national surveillance system for keeping re-

cords of the number of women counseled about amniocentesis or the number of amniocentesis procedures performed. Therefore, there are no existing national data on women in high risk categories who have received counseling and/or prenatal diagnosis. The most recent Association of State and Territorial Health Officials data collection instrument requires reporting of aminocentesis and chromosome analysis. Approximately 40 States are participating in this system. It is estimated that less than half of the pregnant women for whom amniocentesis is considered medically appropriate are receiving it (Journal of the American Medical Association, 1982, 248: 1733).

Factors impeding progress include failure of health care providers to refer patients for genetic counseling, financial barriers to service, geographic distance from a genetics counseling service, and the limited number of providers. Strong cultural biases against amniocentesis keep many high risk women from using this service.

Education about prenatal diagnosis and amniocentesis should be provided for all health care professionals providing prenatal care. Public education is also required. Third party payers should be encouraged to include genetic services as a part of their coverage. A more appropriate statement of this objective might be: By 1990, 40 percent of pregnant women who are 35 or older should have fetal chromosomal diagnosis and each State should have implemented a plan to inform high risk women in public clinics of prenatal diagnostic services within the first trimester of their pregnancy.

Access to prenatal diagnosis for all high risk women cannot be measured. If women 35 and over are selected as a "marker" target group, information on the number having fetal chromosomal diagnosis can be used. Approximately half of the women counseled elect to have the diagnostic procedures. A goal of 40 percent should be reached by 1990.

Objective p. By 1990, virtually all women who give birth should have appropriately attended, safe delivery, provided in ways acceptable to them and their families.

Baseline In 1977, less than 0.3 percent of births were unattended by a physician or midwife. No data were available on the portion considered satisfactory by the women or their families.

Status In 1982, 0.9 percent of live births were unattended by a physician or midwife. No data are available on deliveries provided in ways acceptable to women and their families.

Comment Assuming that "appropriately attended, safe delivery" means delivery attended by a physician or midwife, it would appear that the first part of this objective has been met. With percentages of unattended deliveries as low as 0.3 percent and 0.9 percent, a goal of "virtually all" can be claimed. The slight rise between 1977 and 1982 in the percentage of unattended births reflects an increase in the number of women in this country who by choice seek alternative birthing arrangements. Data on the second part are not available and would be very difficult to attain.

A number of States are developing tracking systems to identify infants believed to be at risk of poor outcomes. Such systems are usually cooperative efforts of tertia-

ry centers, local hospitals, private practitioners and public health facilities. Some States are beginning to link the records of at least one of the service delivery programs to their already linked birth and death certificate system. The number of States that have such a system is not known. Examples of systems now in place include linkages with neonatal intensive care unit files, a child-abuse registry, high-risk-pregnancy programs; and Women-Infant-Children (WIC) program attendance.

Although information on major known risk factors for low birth weight and infant mortality may be gathered by State programs during the process of providing the services needed, these are rarely available or captured in any ongoing data system. At present, only one State and one metropolitan area have smoking information available on their birth certificates. All birth certificates have the ability to identify specific medical risks, but they are presently inadequate because of frequent failure to check an item as positive when the medical risk is, in fact, present. The interest in development of a surveillance system seems high. NIMS should provide a substantial impetus for standardization of methods used to link birth and death certificates and for continuation of the linkages. NCHS is currently determining the feasibility of establishing a national system of linked birth and death records to provide an improved data base for monitoring of longitudinal data.

Two national data collection systems can also contribute to the achievement of this objective. The National Natality Survey, a follow-back survey of a sample of infants born in a given year, with information based on hospital records and maternal recall, provides the opportunity to make national estimates of a wide variety of factors related to pregnancy outcome. The last survey was conducted in 1980; the next is scheduled for 1988.

The second national system is the Birth Defects Monitoring Program which gathers hospital discharge information from the Commission on Professional and Hospital Activities (CPHA). As part of its Professional Activities Study (PAS), discharge abstracts completed by hospital medical records staff are submitted regularly to CPHA for data processing. Data contained in the abstracts on all live and still-born infants delivered in each PAS hospital are used in the Birth Defects Monitoring Program. Although this data source is not population based nor a random sampling of U.S. births, it represents the largest single source of uniformly-collected data on birth defects in newborn infants and is useful for correlating incidence patterns with such trends as temporal and geographic distribution of drugs, chemicals and other possible human teratogens.

Many of the outcomes described in the objective come to the attention of workers traditionally not a part of the public health system, such as schools. Their support and participation in such a system is anticipated. Initiation of such a system will, however, require a great deal of personnel time to establish the personal and agency links necessary to develop the needed cooperation and collaboration. Progress to meet this objective will require improvement in State analytic and computer capability. While many States are working to develop these resources, it will be some time before they are in place.

The providers of maternity care have, over the past several years, attempted to make the birth process more family-centered by making birthing rooms and birthing centers available to low risk women who choose to use them and by providing ways for a support person to be involved in the labor and delivery. Factors impeding progress toward meeting this objective include financial and geographic barriers to care, lack of adequately trained providers and appropriate facilities, and the attitudes of care groups.

Those activities designed to make prenatal and perinatal care more accessible will facilitate achievement of this objective.

Objective q. By 1990, virtually all newborns should be provided neonatal screening for metabolic disorders for which effective and efficient tests and treatments are available [for example, phenylketonuria (PKU) and congential hypothyroidism].

Baseline In 1978, about 75 percent of newborns were screened for PKU; about three percent were screened for hypothroidism in the early 1970s.

Status In 1985, 50 States and the District of Columbia have new born screening programs that include at a minimum PKU and hypothyroidism. In the States that provided detailed reports, 87 percent of infants were screened for galactosemia, 83 percent for maple syrup urine disease, and 87 percent for homocystinuria. (Association of State and Territorial Health Officials; Genetic Services Branch, Division of Maternal and Child Health, Health Resources and Services Administration).

Comment Based on progress to date, it appears likely that this objective will be met. Centralization of laboratory testing, quality assurance, tracking and monitoring functions by the State health agencies have markedly improved newborn screening programs. Improvements in the percent of neonates screened can be linked to passage of the National Genetic Disease Act (PL-94-278) of 1976, which provided funding for State genetic service programs. A March of Dimes representative indicates that the growth in literature of these disorders and physician concerns about liability (in the event of failure to diagnose an affected infant) are also factors contributing to the rise of screening. A possible impediment to attaining this goal is that not every State enforces these tests, and considering budgetary constraints, may not undertake new programs.

Objective r. By 1990, virtually all infants should be able to participate in primary health care that includes well child care; growth and development assessment; immunization; screening, diagnosis and treatment for conditions requiring services; and appropriate counseling regarding nutrition, automobile safety, and prevention of other accidents such as poisonings.

Baseline Baseline data were not available.

Status Data to assess the status of this objective are not available.

Comment Because there is no system for collecting data on primary health care services to infants, it is not possible to predict whether this objective will be met. Based on immunization data alone, however, achievement appears unlikely.

State health departments and primary care projects report numbers of children seen, and the Health Care Financing Administration has some information on children receiving services through Medicaid and the Early and Periodic Screening, Diagnosis and Treatment Program, but there is no mechanism for collecting

information about children seen by other public and private providers. According to the National Center for Clinical Infant Programs, certain States are beginning to have tracking systems which identify, enter, follow and tie to service those children who will need special help.

Mechanisms for assessing the content of primary health care provided children are even more limited. According to CDC, there has been a slight decline in immunization levels since 1982 for children under the age of two. Less than half of the Black preschool children has been immunized against diphtheria, tetanus and pertussis, and only 39 percent have been immunized against polio. Information on whether or not parents have been counseled about nutrition, automobile safety and accident prevention is more difficult to obtain. The majority of those who commented on the objective suggested that access to primary health care for infants would be a measure more easily obtainable.

Progress toward meeting this objective will require: (1) knowledge relative to the value of preventive health care by consumers; (2) financial, geographic and manpower support to improve access to care, including adequate availability of public health nurses, community outreach programs and community-oriented health care, and (3) a reorientation of many health-care providers toward prevention.

Strategies that have been developed to facilitate reaching this objective include: (1) increasing emphasis on prevention in the professional education of health-care providers; (2) use of mid-level practitioners such as nurse practitioners and physician assistants; (3) programs such as the National Health Service Corps which are designed to improve the geographic distribution of health-care providers; (4) efforts to develop systems which ensure appropriate levels of health care for children; and (5) public and professional education programs which emphasize the value of preventive services.

Objective s.

By 1990, a system should be in place for comprehensive and longitudinal assessment of the impact of a range of prenatal factors (for example, maternal exposure to radiation, ultrasound, dramatic temperature change, toxic agents, smoking, use of alcohol and drugs, exercise and stress) on infant and child physical and psychological development.

Comment

Based on progress to date, it appears unlikely that this objective will be met. Various parts of the objective have been addressed at national, State and local levels, however.

Several terms of the objective need to be specifically defined. For purposes of this review, "longitudinal assessment" is interpreted as the ability to monitor trends in outcomes desired, as well as in the exposures of concern. A second possible definition minimally addressed in this review relates to the ability to track individual children from the time of pregnancy through birth and their first years of life. For the term "impact," the primary definition used is the effect on the overall population of a given risk factor with regard to specific outcomes. This definition assumes that a risk factor has, in fact, been identified as a likely causative agent for adverse reproductive outcome. A second definition of "impact" refers to the determination of whether a putative risk factor does, in fact, cause an adverse reproductive outcome.

In 1984, NCHS surveyed 52 of the vital statistics registration areas and found that 45 had linked birth and death files on computer tape with approximately half

being by birth cohorts and half by death cohorts. Substantial variation existed in methods and completeness of linkage matching.

In 1985, under the National Infant Mortality Surveillance Project (NIMS), 53 reporting areas have submitted linked data for the 1980 cohort. Thus, all States appear to have the capability to develop birth cohort linkages. Because several provided either hand tabulations or physical copies of the linked certificates, the capacity for effective analysis of a comprehensive monitoring system is likely to be limited in many States.

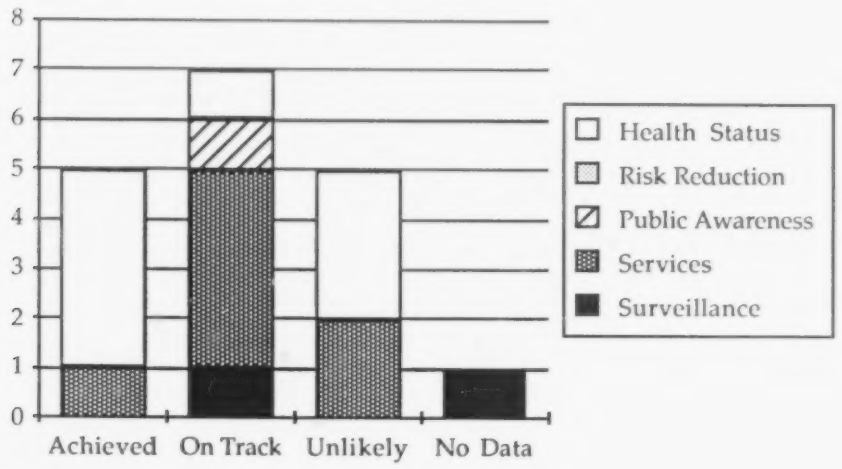
At present a surveillance system for congenital anomalies is in place in one metropolitan area. Other areas are developing systems. Pilot activities are proposed for cerebral palsy and mental retardation. Although specific clinical studies have looked at infertility, fetal alcohol syndrome, communicative disorders, seizures, and developmental delays, none has been thoroughly tested in a population-based setting, and there are no known plans to do so.

Section D IMMUNIZATION

The development and widespread use of vaccines for the prevention of infectious diseases resulted in the most dramatic improvement in national health status this country has ever experienced. Diseases that once ranked among the leading causes of death and disability, particularly for children, now are regarded with less concern. Over the past 25 years, mass vaccination programs have resulted in 98 percent declines in the incidences of measles, mumps, rubella, diphtheria, and polio. Even more dramatic was the global eradication of smallpox, in 1977, as the result of an intense worldwide effort to eliminate the disease through vaccination.

Even though the burden of suffering from the major childhood diseases is substantially less today than at the turn of the century, the potential exists for childhood infectious diseases once again to touch substantial portions of the U.S. population. With the exception of smallpox, the causal agents for the major diseases of childhood have yet to be eliminated. Thus, an unimmunized child not only faces the possibility of contracting one of these diseases, but also runs a risk the illness episode will result in permanent disability or even death. Epidemics of the childhood infectious diseases could recur if immunity levels within the U.S. population are not maintained.

Status of Immunization (18 Objectives)



As important as they are, public and private sector efforts to sustain current immunization levels are but one part of a broad national program to protect the public from infectious diseases through vaccines. Programs to reach large numbers of the appropriate population groups with new vaccines once developed, to educate the public about the use of vaccines to protect against disease, and to develop better reporting systems are being actively pursued. The 18 objectives that make up this priority area reflect this national commitment. The progress to date toward realizing this national agenda is substantial, with 28 percent already achieved, and 44 percent on the way.

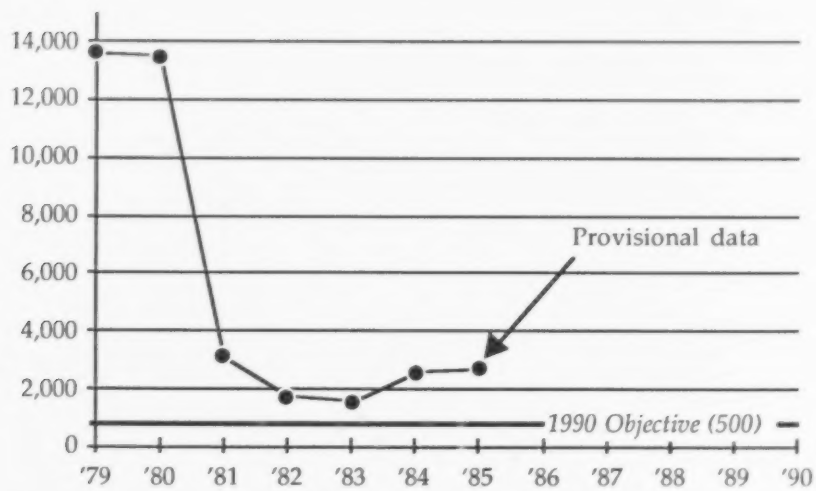
IMPROVEMENT OF HEALTH STATUS

Objective a. By 1990, reported measles incidence should be reduced to less than 500 cases per year. All cases will be the result of importation and be confined within two generations of spread.

Baseline In 1979, there were 13,597 measles cases reported.

Status In 1985, there were 2,704 measles cases reported. (Provisional data for 1985).

Incidence of Measles
(Number of Reported Cases)



Source: Centers for Disease Control

Comment

Based on progress to date, achievement of the proposed target for 1990 is questionable, though the number of cases is expected to remain relatively low. Progress will be affected by changes in three important areas: (1) vaccine prices, (2) public sector funding, and (3) vaccine liability. If vaccine prices increase significantly, especially in combination with a reduction in funds available to the public sector for conducting measles immunization programs, progress may be impeded. Similarly, failure to resolve the issues associated with liability and compensation for vaccine-associated injuries may result in a slowing of the rate of progress toward attainment of this objective.

Although considerable progress has been made toward elimination of indigenous measles, transmission still occurs in approximately seven percent of the counties of the United States. While the geographic focus of measles transmission has been the same in each of the last three years, the absolute number of cases has increased from the record low observed in 1983 to 2,704 in 1985. Outbreaks have occurred in a few areas in spite of high immunization levels and aggressive control measures. Finally, continuing problems in vaccine coverage and in the occurrence of measles in other parts of the world makes reported importation of measles likely. Success in international measles elimination efforts will greatly lessen the threat of importation and the spread of measles in the United States.

Objective b.

By 1990, reported mumps incidence should be reduced to less than 1,000 cases per year.

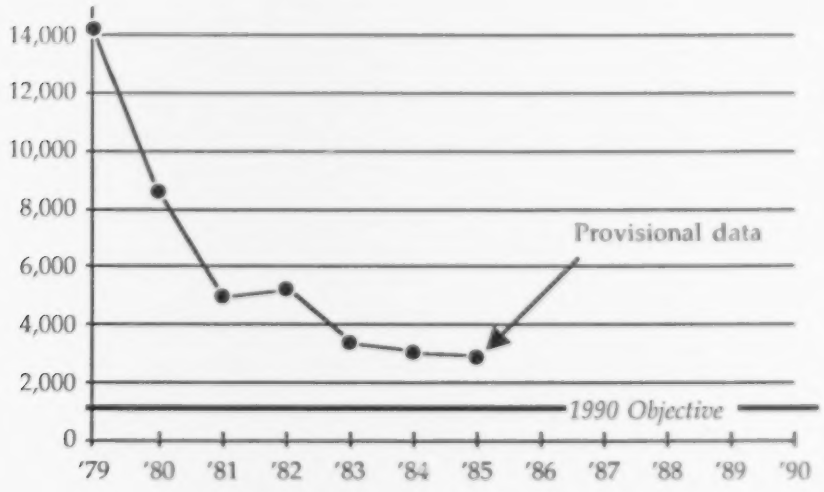
Baseline

In 1979, there were 14,225 mumps cases reported.

Status

In 1985, there were 2,886 mumps cases reported. (Provisional data for 1985).

Incidence of Mumps
(Number of Reported Cases)



Source: Centers for Disease Control

Comment

Based on progress to date, it appears likely the proposed target for 1990 will be reached. This projection is based on the assumption there will be no major changes in three important areas: (1) vaccine prices, (2) public sector funding, and (3) vaccine liability. If vaccine prices increase significantly, especially in combination with a reduction in funds available to the public sector for conducting mumps immunization programs, progress may be impeded. Similarly, failure to resolve the issues associated with liability and compensation for vaccine-associated injuries may result in a slowing of the rate of progress toward attainment of this objective.

Objective c.

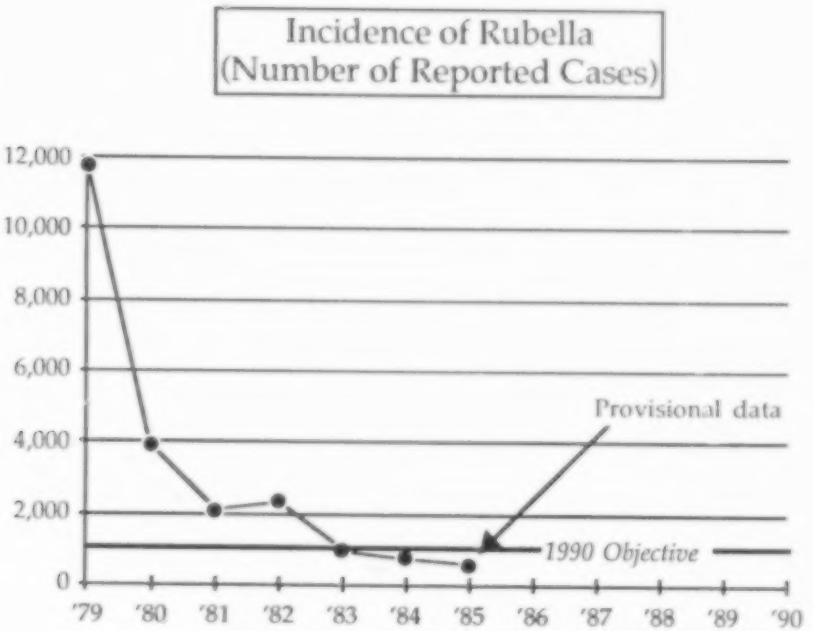
By 1990, reported rubella incidence should be reduced to less than 1,000 cases per year.

Baseline

In 1979, there were 11,795 rubella cases reported.

Status

In 1985, there were 604 rubella cases reported. (Provisional data for 1985).



Source: Centers for Disease Control

Comment

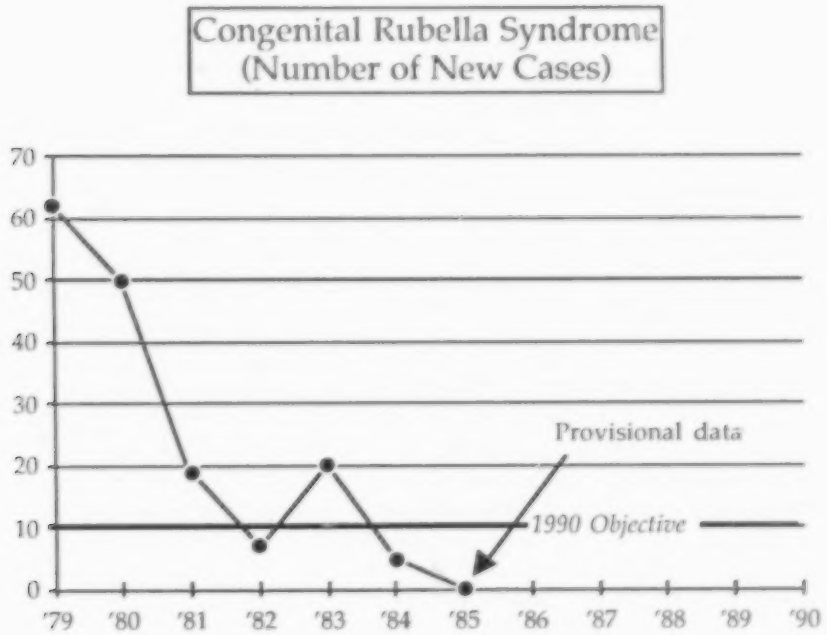
This objective has been achieved already and should be maintained through 1990 unless there is a major change in vaccine prices, public sector funding, or vaccine liability. If vaccine prices increase significantly, especially in combination with a reduction in funds available to the public sector for conducting rubella immunization programs, the number of rubella cases reported each year may show year over year increases rather than remaining stable or continuing to decline. Similar-

ly, failure to resolve the issues associated with liability and compensation for vaccine-associated injuries may result in a reversal in the amount of progress achieved to date.

Objective d. By 1990, reported congenital rubella syndrome incidence should be reduced to less than 10 cases per year.

Baseline In 1979, there were 62 new cases of congenital rubella syndrome.

Status In 1985, no new cases of congenital rubella syndrome were reported. (Provisional data for 1985).



Source: Centers for Disease Control

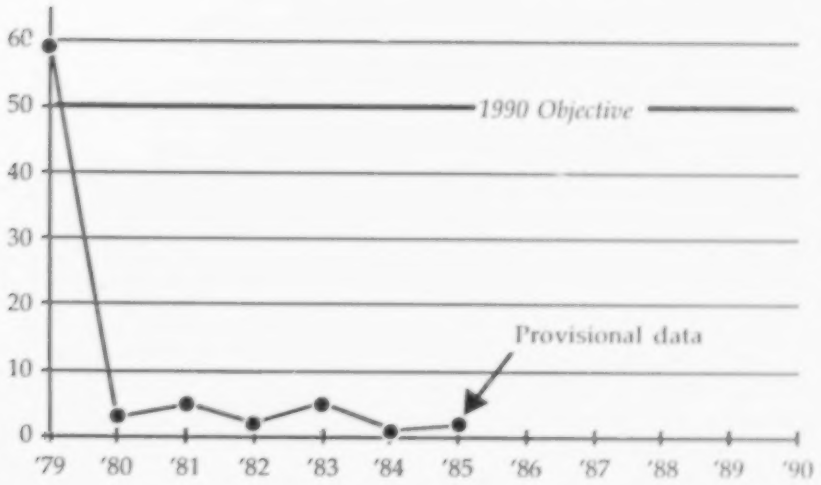
Comment This objective has been achieved and the reported incidence of congenital rubella syndrome should remain below the target through 1990. No cases of congenital rubella syndrome were reported during 1985. This data item may be revised at a later date, however, due to the delay in disease recognition.

Objective e. By 1990, reported diphtheria incidence should be reduced to less than 50 cases per year.

Baseline In 1979, there were 59 diphtheria cases reported.

Status In 1985, two cases of diphtheria were reported. (Provisional data for 1985).

Incidence of Diphtheria
(Number of Reported Cases)



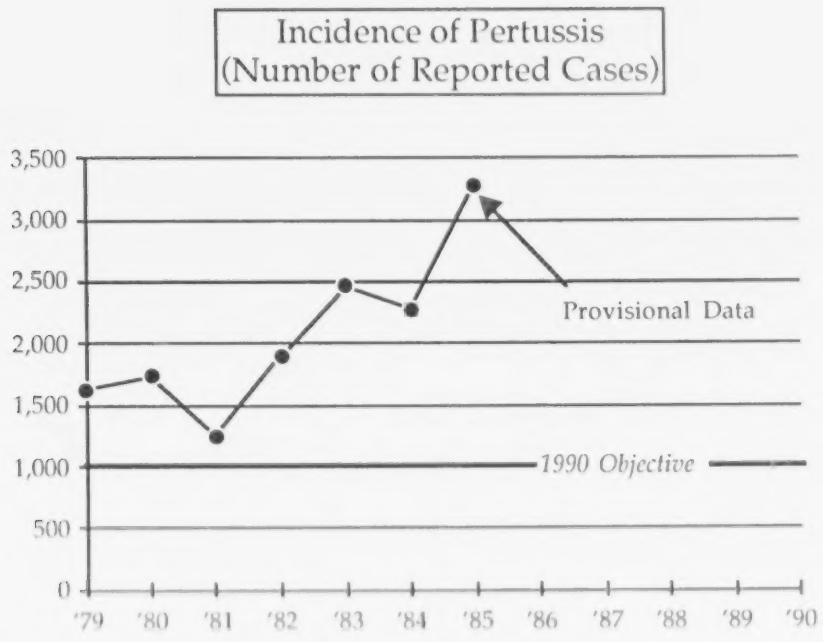
Source: Centers for Disease Control

Comment Prior to 1980, the incidence of diphtheria included both cutaneous and noncutaneous cases of diphtheria. Cutaneious diphtheria was removed from the disease reporting definition in 1979, leading to the dramatic decrease between 1979 and 1980 in the number of diphtheria cases reported. It is not possible to differentiate cutaneous from noncutaneous diphtheria prior to 1979.

Objective f. By 1990, reported pertussis incidence should be reduced to less than 1,000 cases per year.

Baseline In 1979, there were 1,623 pertussis cases reported.

Status In 1985, there were 3,275 pertussis cases reported. (Provisional data for 1985).



Source: Centers for Disease Control

Comment

Based on progress to date, it appears unlikely this objective will be achieved. Nationwide, pertussis cases continue to be most common and most severe in infants and young children. While immunization levels remain at 95 percent among school entrants, coverage with three doses of DTP in preschool children who do not attend a licensed day care facility is lower. Three dose coverage among children two years of age is estimated to be 80-85 percent. Efforts continue to provide three doses of DTP by six months of age (as is recommended by ACIP). These include innovative approaches to ensure that infants are enrolled in immunization clinics by two months of age and once enrolled, return on schedule to complete a primary series.

It is likely still that only a relatively small portion of the total pertussis cases actually occurring each year are diagnosed and reported. The present lack of laboratory tests that are specific, sensitive, rapid and readily available hampers case detection. In addition, the criteria for what is a reportable case vary from State-to-State. Several diagnostic tests are being investigated currently. Pending the development of such tests, sensitive and specific case definitions will not be available. CDC is working with the Conference of State and Territorial Epidemiologists to develop and promote standard criteria for reporting by States. Large outbreaks of pertussis occurred annually, with the exception of 1981, in one or more States. The outbreaks have been both diffuse (i.e., statewide) and restricted (i.e., within a defined population in which routine immunization has not been practiced). These annual outbreaks accounted for a large portion of the total cases reported each year nationwide. The descriptive epidemiology of the outbreaks has differed substantially in age distribution, immunization status and transmission. For example, in some recent metropolitan and statewide outbreaks a substantial portion of the cases have occurred in adults.

For routine protection and outbreak control, age appropriate immunization is most important. However, the pertussis antigen is recommended only for per-

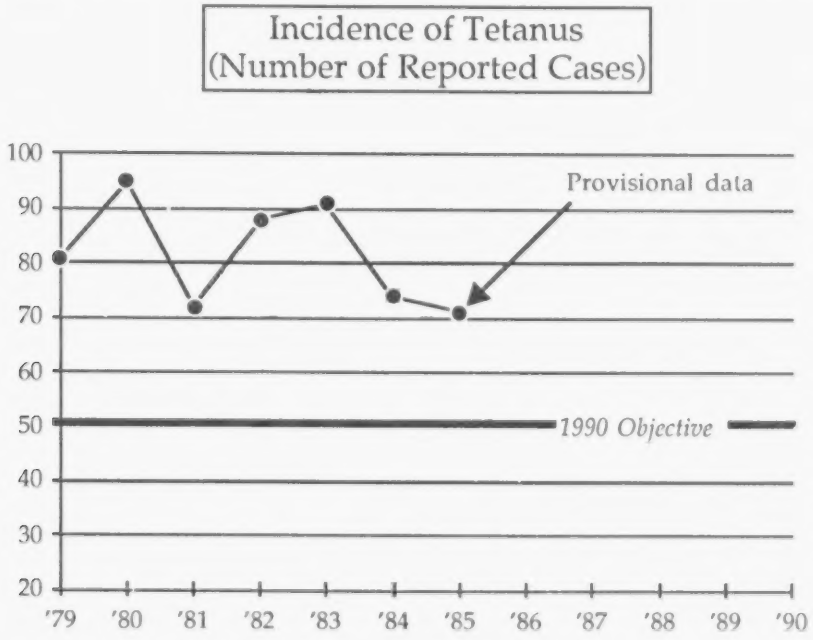
sons less than seven years of age. The alternative prophylaxis for exposed older children and adults is antibiotics. Successful prevention is predicated on early recognition of exposure and prompt antibiotic administration. The efficacy of antibiotic prophylaxis has not been conclusively proven. The importance of pertussis in adults is being recognized increasingly, especially as sources of transmission into the workplace and into the home. This has led to increased awareness among physicians caring for adults and, subsequently, to a gradual trend toward a larger portion of the reported cases being in adults.

While no standard guidelines are used by individual States for investigating cases of pertussis, most States investigate the household members of reported cases. This in itself has led to the identification of additional cases.

Other factors that may have led to the increased occurrence of cases in 1985 include the effect on vaccine coverage of the pertussis vaccine controversy and the temporary shortage of pertussis vaccine during late 1984 and early 1985. While it is possible that these factors had some effect on the number of pertussis cases reported in 1985, neither factor is likely to have widespread or long-term impact, especially in light of the fact that, with the exception of 1984, the number of reported cases has increased each year since 1981.

The effect of providing improved overall vaccine coverage may not in itself be adequate to reduce reported pertussis cases by 1990. Improved surveillance and case ascertainment resulting from a general increased interest in pertussis will lead to identification of an increasing portion of the total cases and result in more cases being reported. Furthermore, the limitations of the current vaccine both in its efficacy and in the age in which it can be used and the lack of effective alternatives to vaccine in outbreak control suggest that it will be difficult to meet the 1990 objective.

Objective g. By 1990, reported tetanus incidence should be reduced to less than 50 cases per year.



Source: Centers for Disease Control

Baseline In 1979, there were 81 tetanus cases reported.

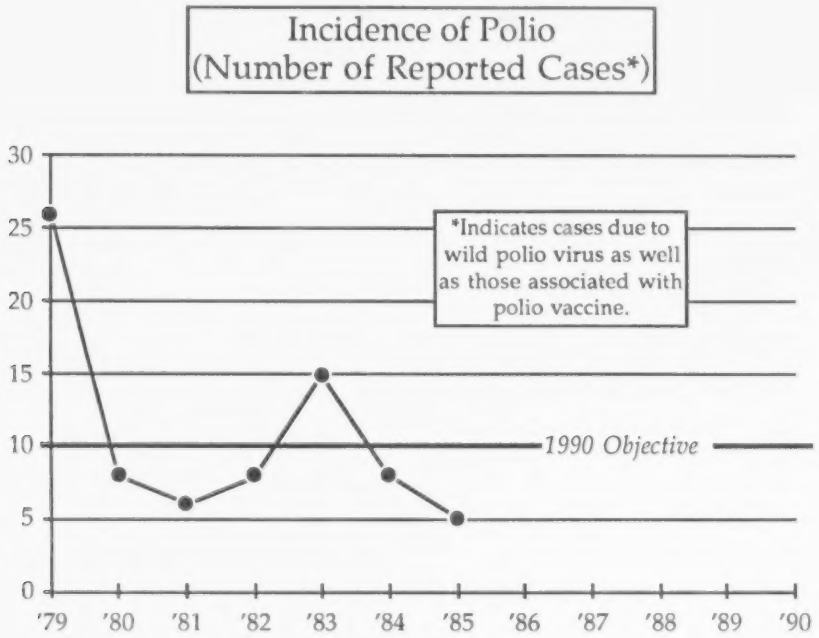
Status In 1985, there were 71 tetanus cases reported. (Provisional data for 1985).

Comment Based on progress to date, it is unlikely that this objective will be met. Less than 100 cases of tetanus have been reported during each of the last 10 years. Though the level has fluctuated, it has ranged consistently between 70 and 100 cases.

Objective h. By 1990, reported polio incidence should be less than 10 cases per year.

Baseline In 1979, there were 26 polio cases reported.

Status In 1985, five cases of polio were reported, all vaccine-associated.



Source: Centers for Disease Control

Comment This objective has been achieved already and should be maintained through 1990 unless there is a change in vaccine prices, public sector funding, or vaccine liability. If vaccine prices increase significantly, especially in combination with a reduction in funds available to the public sector for conducting polio immunization programs, the number of polio cases reported each year due to wild polio virus may increase. Similarly, failure to resolve the issues associated with liability and compensation for vaccine associated injuries may result in a reversal in the amount of progress achieved to date. It is important to note that all of the polio cases reported in 1985 were associated with oral polio vaccine.

PUBLIC AND PROFESSIONAL AWARENESS

Objective i. By 1990, all mothers of newborns should receive instruction prior to leaving the hospital or after home births on immunization schedules for their babies.

Baseline Baseline data were not available.

Status Reports from immunization grantees indicate that in calendar year 1984 there were 4,562 hospitals in the United States with obstetric services and, of these, 3,935 had some program to educate new mothers. Out of 3,802,963 births, mothers of 3,092,876 infants (81 percent) received education while in the hospital. (Centers for Disease Control)

Comment Based on the growing trend for hospitals to offer comprehensive education programs as part of their obstetrical services, it appears likely this objective will be reached. The principal issue for this objective is the lack of a national data set to document the amount and rate of movement toward the identified endpoint. The current mechanism for measuring the prevalence of hospital-based education of new mothers about the importance of childhood immunization is completely voluntary. Further there is no commonly accepted definition of what constitutes a hospital-based education program.

All recipients of Federal immunization grants are supposed to be involved in delivering education to new mothers. The type of educational information provided and the mechanism for providing the information varies from one grantee to another and even within different hospitals in a single grantee area. Some mothers get only reading material in the form of a pamphlet or booklet, some see a video tape, some get a personal visit, and some get a combination of these mechanisms. Regardless of the mechanism used, the information provided may be limited to: (1) what the recommended immunization schedule includes, (2) the recommended immunization schedule plus information on area clinic hours, (3) the immunization schedule, area clinic hours, plus information on the diseases or, (4) some variation of the preceding items.

The precise effect or benefit of the various educational methods is uncertain. CDC is developing a pilot systematic program evaluation in Missouri to better understand the effects of such programs.

IMPROVEMENT OF SERVICES

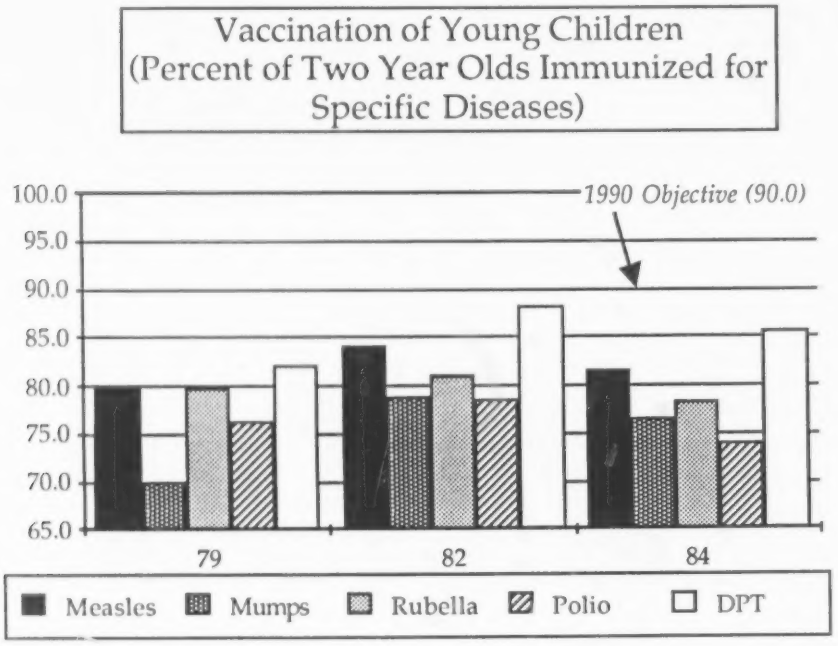
Objective j. By 1990, at least 90 percent of all children should have completed their basic immunization series by age two -measles, mumps, rubella, polio, diphtheria, tetanus, and pertussis.

Baseline In 1979, 70 to 80 percent of children two years of age had received vaccinations for each of the diseases in the basic immunization series.

Status

In 1984, the percentage of children receiving vaccinations for the specific diseases in the basic immunization series by age two was as follows:

- 81.7 percent vacinated against measles
- 76.7 percent vaccinated against mumps
- 78.4 percent vaccinated against rubella
- 74.2 percent vaccinated against polio
- 85.8 percent vaccinated against diphtheria
- 85.8 percent against vaccinated tetanus
- 85.8 percent against vaccinated pertussis



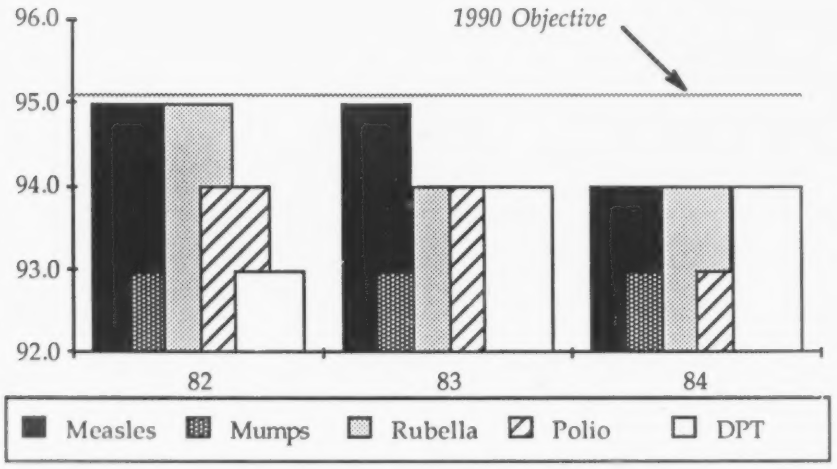
Source: Centers for Disease Control

Comment

Based on progress to date, there is a good chance that this objective will be reached. Although there has been a slight decline since 1982 in the percentage of children two years of age vaccinated for specific diseases, these differences are not statistically significant and reflect only chance variation as a result of the sampling process. These results are based on the U.S. Immunization Survey (USIS), which is carried out by the Bureau of the Census. These data are a subset of the total sample estimate. They are based on only those records in which the respondent referred to an immunization record prior to or during the actual interview. The total sample estimate is believed to underestimate the true immunization levels whereas the "record" subset of responses is considered a more accurate reflection of true immunization levels.

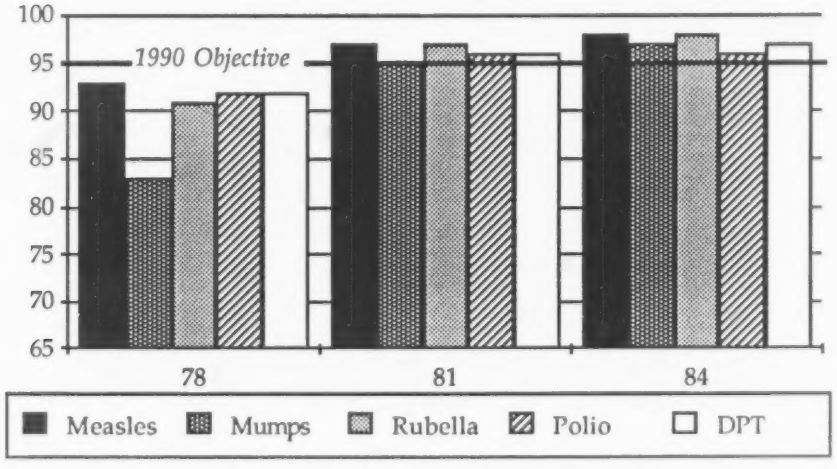
Objective k. By 1990, at least 95 percent of children attending licensed day care facilities and kindergarten through 12th grade should be fully immunized.

Vaccination of School-Age Children
(Percent of Day Care Children for Specific Diseases)



Source: Centers for Disease Control

Vaccination of School-Age Children
(Percent of Kindergarten or 1st Grade Children for Specific Diseases)



Source: Centers for Disease Control

Baseline

Based on data collected during the 1978-79 school year, the immunization level for measles, rubella, polio and DPT was about 90 percent for first school entrants and lower overall.

Status

For the 1984-85 school year:

- Head Start Programs reported immunization levels of 93 percent or higher;
- Day Care Centers reported immunization levels of 93 percent or higher;
- Kindergarten through first grade school entrants had immunization levels of 96 percent or higher; and
- Kindergarten through 12th grade report levels of 88 percent or higher

Comment

Based on progress to date, it appears likely this objective will be reached. The data set for kindergarten or first grade continues to be the most accurate measure of immunization status in the United States. The programs and policies now in place should yield the specific target prior to the end of the decade.

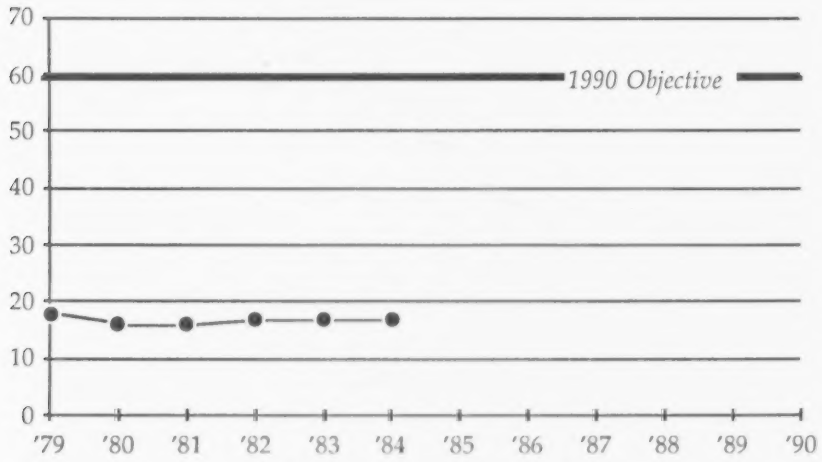
Objective I.

By 1990, at least 60 percent of high risk populations as defined by the Immunization Practices Advisory Committee of the Public Health Service (ACIP) should be receiving annual immunization against influenza.

Baseline

In 1979, about 18 percent of high risk populations were immunized against influenza.

Annual Influenza Immunization
(Percent of High Risk Population
Immunized Annually)



Source: Centers for Disease Control

Status In 1984, about 17 percent of high risk populations were immunized against influenza.

Comment Based on progress to date, it appears unlikely this objective will be reached. Little change in the rate of immunization has occurred since 1979. Professional and public educational materials are being developed in 1986 to stress the need for adult immunizations including influenza. Agencies within PHS are working with State and local health departments and nonprofit organizations to promote adult immunizations, and influenza vaccine in particular. While these activities are expected to help increase the percentage of high risk persons immunized, it is unlikely that the target immunization level of 60 percent will be attained unless resources are expanded or insurance reimbursement for the cost of influenza vaccine and its administration is make widely available.

Objective m. By 1990, at least 60 percent of high risk populations, as defined by the ACIP, should have received vaccination against pneumococcal pneumonia.

Baseline Baseline data were not available.

Status In 1984, an estimated 9.5 percent of the high risk population had received a vaccination against pneumoococcal pneumonia.

Comment Based on progress to date, it appears unlikely this objective will be reached. Data collected in 1984, using the United States Immunization Survey questionnaire of the current population survey conducted by the Bureau of the Census, provide the first national estimate of the degree to which efforts in support of this objective are yielding the desired outcome. Given the disparity between the target rate and current vaccination rates among high risk populations, it is doubtful that this objective will be achieved even with an expanded effort to do so. High risk populations are defined to include persons with chronic cardiac or pulmonary disease, persons with illnesses or conditions known to predispose to pneumococcal infection (Hodgkin's disease, asplenia, multiple myeloma, cirrhosis, alcoholism, renal failure, cerebrospinal fluid leaks and conditions associated with immunosuppression), and persons over 65 years of age.

Objective n. By 1990, at least 50 percent of people in populations designed as targets by the ACIP should be immunized within five years of licensure of new vaccine for routine clinical use.

Baseline Baseline data were not available.

Status Two vaccines have been licensed for routine clinical use since this objective was established, one to immunize high risk populations against Hepatitis B and the other to immunize children 24 months of age against *Haemophilus influenzae* b. The status of each is as follows:

- By 1985, 20 percent of those targeted to receive Hepatitis B vaccine, on average, were immunized. The range extended to a high of 30 percent among health care workers from a low of four percent among other groups. Hepatitis B vaccine was licensed for public use in November 1981.
- By the end of 1985, an estimated 3.5 million doses of *Haemophilus influenzae* b (Hib) vaccine had been distributed and an estimated three million doses had been administered. No data are available on the number of doses administered to the target age group, children two years of age. *Haemophilus influenzae* b vaccine was licensed for public use in April 1985.

Comment

Based on progress to date, it appears likely the intent of this objective could be reached relative to both the Hepatitis B vaccine and the *Haemophilus influenzae* b vaccine.

Hepatitis B. The CDC is working to strengthen professional and public education efforts at the state and local level regarding the benefits and risks of Hepatitis B vaccine. Liaison activities with professional groups, public health agencies and voluntary organizations to promote the use of Hepatitis B vaccine are also underway. In addition, CDC has issued updated recommendations on the prevention of Hepatitis B through the use of the vaccine, published recommendations on adult immunization with Hepatitis B vaccine in a special *MMWR* supplement and published a report on the occupational risk of Hepatitis B infection in hospital workers. An information form about Hepatitis B vaccine also has been developed for use with the general public.

To learn more about Hepatitis B vaccine, CDC is conducting a vaccine demonstration project in American Samoa. Information from this project should help investigators devise strategies for eliminating the transmission of Hepatitis B in areas where the disease is endemic. CDC also is studying how long the protection afforded by the vaccine persists.

As part of its ongoing efforts to increase the acceptance and use of the vaccine within high risk populations, CDC has awarded a contract to determine those factors which play a key role in Hepatitis B vaccine acceptance among homosexual men. CDC also is in the process of developing educational materials and programs to increase physician use of the vaccine with individuals who fall within those groups targeted for receiving the vaccine. In a related activity, CDC has contacted major national health insurers and prepayment plans to determine coverage for Hepatitis B vaccine.

If the intent of this objective is to be realized in relation to Hepatitis B vaccine, public and private sector efforts to reach target groups with the vaccine will have to be intensified. This poses a special challenge to providers and the public health community as there is less of a tradition in adult medicine than in pediatrics for immunization. Surveillance systems will have to be improved as well. The best estimates of disease incidence are from the CDC Sentinal Counties Study which is not a representative sample. Also, there is no national source of data on Hepatitis B vaccine coverage.

Haemophilus Influenzae B. The ACIP now recommends that all children be immunized with Hib vaccine at two years of age. The ACIP also recommends that children between the ages of three and four years of age may be immunized, but the decision to immunize should be based on risk of disease. No data are available on the proportion of the administered Hib vaccine that has been received by

children older than two years of age. The ACIP also recommends that children between 18 and 23 months of age, particularly those in a high risk group such as daycare attendees, may be considered for Hib vaccine. This age group probably accounts for only a small proportion of Hib vaccine administered to date. If the ACIP recommendations are fully implemented, this objective, with respect to Hib vaccine, will clearly come within reach.

In general, private sector providers and public sector providers each administer vaccines (all types) to 50 percent of U.S. children. Because of the high cost of Hib vaccine ($68.50 per 10 dose vial) and the lack of a consolidated Federal purchase contract, few States, counties or cities purchased Hib vaccine for public providers during 1985. Hence, most of the Hib vaccine administered in 1985 was administered by private health providers. During 1985 no Federal immunization grant monies were available for the purchase of Hib vaccine.

In January of 1986, two additional manufacturers were licensed to produce Hib vaccine. In February 1986, a Federal consolidated vaccine purchase contract for Hib vaccine was negotiated. Under this contract, State health departments are able to purchase Hib vaccine at the negotiated price of $30 per 10 dose vial. Now that less expensive vaccine is available to the public sector and more manufacturers have entered the market, some of the problems of providing vaccine coverage to the target group may be overcome. But, unless States identify funds for Hib vaccine purchase for administration through the public sector, the 1990 objective of 50 percent coverage of children two years of age may not be reached. It is likely that a conjugated vaccine against *H. influenzae* type b for use in infants in a multiple dose schedule may become available before 1990.

Objective o. By 1985, the Nation should have a plan in place to mount mass immunization programs in the face of possible epidemics of influenza or other epidemic diseases for which vaccines may exist.

Baseline In 1979, no such plan existed.

Status A plan for the control of influenza pandemics has been developed, as has a Mass Immunization Guide. These plans will serve as a guideline for future mass immunization programs in the face of possible epidemics of vaccine preventable diseases. In 1984 the plan was reviewed and revised.

Comment This objective has been reached. The influenza plan will be periodically reviewed and revised as appropriate to incorporate new developments in disease control. This plan may be modified to incorporate other epidemic diseases if necessary.

Objective p. By 1990, no comprehensive health insurance policies should exclude immunizations.

Baseline Baseline data were not available.

Status There are no national data to measure, either directly or indirectly, progress toward attainment of this objective.

Comment

Based on the growth of prepaid health benefit plans and the heightened interest in expanding fee-for-service health benefit plans to include basic packages of preventive health services, it appears likely this objective will be reached. This objective has been divided into two subobjectives. The first is for health insurance policy coverage of immunizations administered to dependent children, and the second is for coverage of adult (over 21 years of age) immunizations. The data used to measure progress toward this objective will come from a combination of fee-for-service and prepaid health benefit plans offered to Federal employees in the Atlanta area. There are a total of 17 benefit plans in this data set, 13 fee-for-service and four prepaid plans (commonly designated as comprehensive medical plans or health maintenance organizations). For the purpose of this objective, these 17 plans are assumed to be representative of plans offered to other groups across the country.

CDC has collected benefit coverage descriptions for each of the 17 health benefit plans in the data set and analyzed them to determine coverage for adult and childhood immunizations (regardless of the age of the child). Policy coverage for adult immunization was universal only for comprehensive medical plans and health maintenance organizations. Adult immunization was not uniformly covered under either the standard or the high option fee-for-service plans. A further analysis of adult coverage under fee-for-service benefit plans is now underway.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective q.

By 1990, at least 95 percent of all children 18 years of age and under should have up-to-date official immunization records in a uniform format using common guidelines for completion of immunization.

Baseline

Baseline data were not available.

Status

There are no national data to measure, either directly or indirectly, progress toward attainment of this objective.

Comment

The Public Health Service (PHS) began a concerted effort in 1977 to promote the development and use of standard immunization records by all State Immunization Programs, following a PHS supplied format. Project materials included three standard personal immunization records: one which could be made available to parents of newborn infants as part of hospital education or birth certificate registration programs, a second for children receiving immunizations through public health facilities, and a third for children receiving immunizations through the private sector. For school immunization records a standard statewide record, following a format similar to the personal immunization records, was recommended. At this time, all 50 States have developed and put into use some form of standard personal immunization record. A majority of States have adopted standard school immunization records as well.

Objective r. By 1990, surveillance systems should be sufficiently improved that (1) at least 90 percent of those hospitalized and 50 percent of those not hospitalized with vaccine preventable diseases of childhood are reported, and that (2) uniform case definitions are used nationwide.

Baseline Baseline data were not available.

Status As of 1985, uniform case definitions are in use for diphtheria, measles, polio, congential rubella syndrome (CRS), and tetanus.

Comment Based on progress to date, there is a strong likelihood this objective will be reached. The reporting of all rash illnesses has increased as a result of the measles elimination effort. Publications announcing the Rubella Elimination effort also has resulted in preparation of documents aimed at developing a uniform case definition for rubella. Mumps reporting has increased as a result of both the measles and Rubella Elimination efforts because of the increased administration of MMR vaccine and increased interest in its effects on mumps activity. While only one-third of the States have a uniform case definition for mumps, virtually all States use a very similar case definition in outbreak control efforts.

There is no system at present for determining the reporting efficiency for nonhospitalized cases of vaccine-preventable diseases. Because paralytic poliomyelitis and diphtheria are rare diseases in the U.S., CDC is often consulted for help in making the diagnosis by physicians who have a suspected case of either disease. CDC is routinely contacted in the case of diphtheria, as CDC is the primary source for the distribution of diphtheria antitoxin. CDC cooperates with both the physician and State health departments in the work-up of the suspected diphtheria case and in arriving at a final diagnosis. Since both diphtheria and paralytic poliomyelitis usually involve consultation from infectious disease, neurologic and ear nose and throat (ENT) specialists before a diagnosis is reached, individuals suspected of having one of these diseases are likely to be hospitalized for the diagnostic evaluation. Thus, it is highly likely that individual cases of diphtheria and paralytic poliomyelitis will be reported to the State health department and then to CDC. Tetanus is generally a readily diagnosed clinical entity, and a case generally requires hospitalization for treatment.

Pertussis is probably substantially underdiagnosed due to the variability in clinical symptoms and the lack of good diagnostic laboratory tests. Pertussis is more likely to be considered and diagnosed in infants and young children than older age groups as the disease is most common and most severe in young age groups. Of those pertussis cases diagnosed each year, infants and young children are more likely to require hospitalization. Because of disease severity, pertussis cases in young age groups are most likely to be reported to State health departments and then to CDC. The Commission on Professional Hospital Activities (CPHA) and NCHS Health Data Survey systems can be used to estimate the total number of cases hospitalized in the U.S. This information can then be used to estimate the reporting efficiency for hospitalized pertussis cases. It is likely the portion of hospitalized cases reported to CDC is substantially greater than the portion of nonhospitalized cases. In recent years increased publicity about pertussis disease and vaccine is likely to have improved the awareness of the disease among medical providers and consequently improved diagnosis and reporting.

Case definitions that are both specific and sensitive enough to provide uniform diagnosis of the vaccine-preventable diseases of childhood are not yet available. Diphtheria, paralytic poliomyelitis, tetanus and pertussis all rely primarily on clinical diagnosis derived from history and physical findings. Diphtheria generally presents with fairly standard findings, but because of its rarity diagnosis is

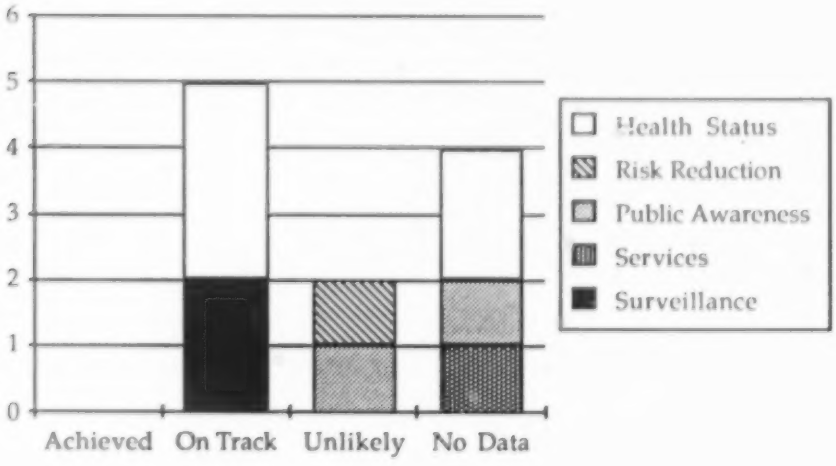
often a process of exclusion when laboratory confirmation cannot be obtained. Usually the signs and symptoms of tetanus are sufficiently diagnostic. On the other hand, the signs and symptoms of pertussis are variable and dependent on age and prior vaccine status. CDC has developed a uniform case definition for paralytic poliomyelitis. Current studies are underway using a variety of laboratory diagnostic methods for confirming cases as a way to provide a standard for the development of workable clinical case definitions.

Section E SEXUALLY TRANSMITTED DISEASES

The sexually transmitted disease (STD) problem in the United States has been expanding at an alarming rate, both in its scope and in its complexity. In 1979, the key targets for the STD 1990 prevention objectives included reducing the rates of infection of gonorrhea, gonococcal pelvic inflammatory disease (PID), primary and secondary syphilis, and congenital syphilis. Six years later the matrix of sexually transmitted organisms and syndromes has increased significantly. The escalating interest in STD reflects more recent appreciation for both the range of agents transmitted through sexual contact and the relationship of STD to reproductive outcomes, genital neoplasias, and immune deficiencies. These organisms clearly have a far-reaching effect on the population, including the capacity to reproduce, the rate of perinatal infection, the incidence of genital cancers, and the susceptibility to opportunistic tumors and infections.

Some major hurdles still face the nation before the 1990 objectives can be successfully met. The population at risk will remain large, fueling the STD epidemic and taxing existing resources. Improvement of surveillance systems, now underway, will facilitate better definition of the extent of STDs and decisions about allocation of resources to control them. Acquired Immunodeficiency Syndrome (AIDS) has emerged as a major STD which was unknown in 1979 and has appropriately been

Status of Sexually Transmitted Diseases
(11 Objectives)



placed at the top of the public health agenda. Pressures to control AIDS will likely impact support available for control of all other STDs. While the challenges posed by STD are great, progress has been substantial in the case of three objectives addressing health status.

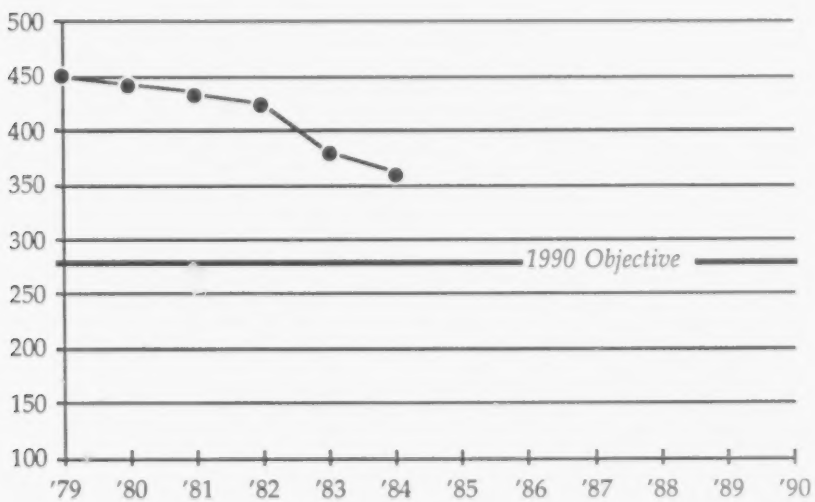
IMPROVEMENT OF HEALTH STATUS

Objective a. By 1990, reported gonorrhea incidence should be reduced to a rate of 280 cases per 100,000 population.

Baseline In 1979, the reported case rate was 459 per 100,000 population.

Status In 1984, the reported case rate was 363 per 100,000 population.

Incidence of Gonorrhea
(Case Rate per 100,000 Population)



Source: Centers for Disease Control

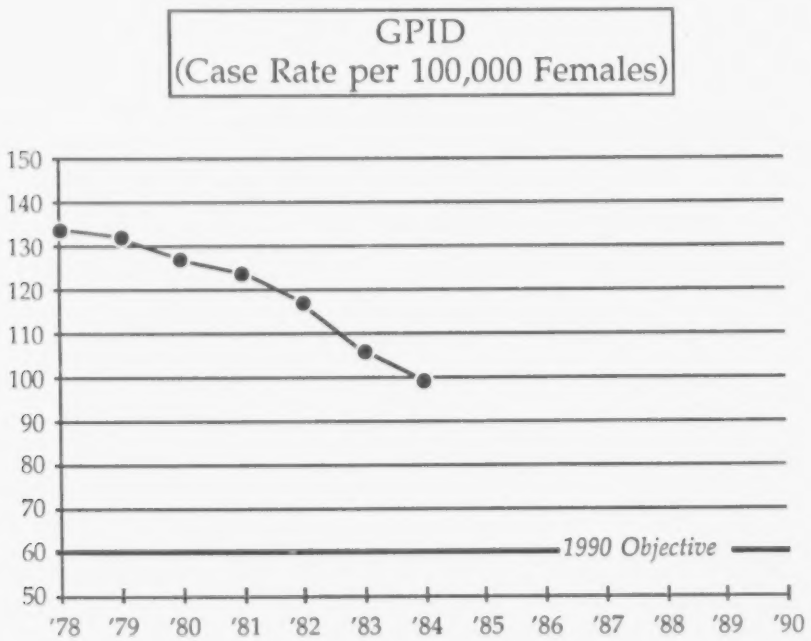
Comment Based on progress to date, it appears that this objective will be met. From 1979 to 1984, the gonorrhea case rate declined 19 percent. Progress is attributable to (1) effective outreach control activities designed to detect and treat existing infections which prevent further spread of infection, and (2) prophylactic treatment of

persons exposed to infection to prevent development of disease. Outreach activities include screening, sex partner identification and examination, and educational programs.

Objective b. By 1990, reported incidence of gonococcal pelvic inflammatory disease (GPID) should be reduced to a rate of 60 cases per 100,000 females.

Baseline In 1978, the estimated incidence of GPID was 133.8 cases per 100,000 females.

Status In 1984, the estimated incidence was 99 cases per 100,000 females.



Source: Centers for Disease Control

Comment Based on progress to date, it appears that this objective will be met. From 1972 to 1984, the GPID rate declined 25 percent. Progress is attributable to (1) effective gonorrhea control activities which detect and treat existing infections to prevent further transmission of the organisms, and (2) prophylactic treatment among persons exposed to gonoccocal infection to prevent development of disease. Outreach activities include screening of sexually active women, identifying hospitals in which to concentrate outreach efforts, identifying GPID patients and ensuring that they receive adequate treatment and post-treatment medical care, interviewing and counseling patients to identify at-risk sex partners and assure that the sex partners receive appropriate medical care, and providing educational programs to increase awareness of this serious condition and to insure compliance with therapy.

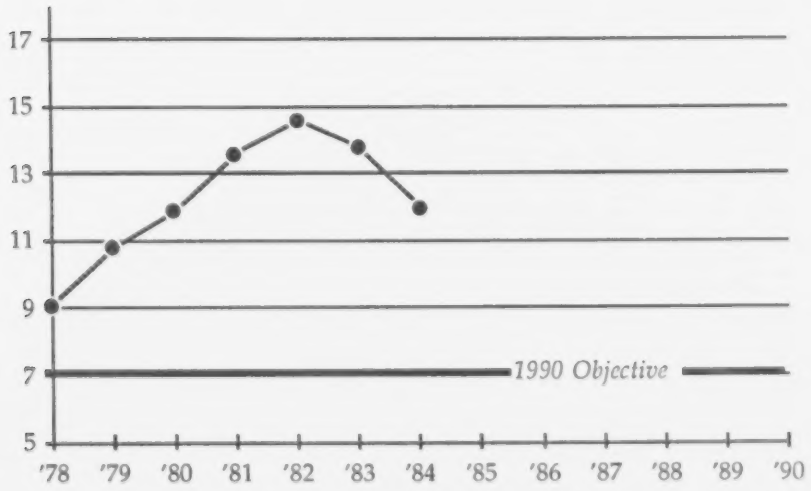
An appropriate revision of this objective would take into account: (1) another major cause of pelvic inflammatory disease (PID), chlamydia, which is estimated to account for one-quarter to one-half of the one million cases of PID each year; and (2) recent data which indicate that the initial measure of GPID was probably an underestimate. Using data from sources of ambulatory and hospitalized PID, an estimated total PID rate, including chlamydia, of 757 cases per 100,000 females occurred in 1984. Thus, given data available in 1985, an estimated total PID rate of 560 per 100,000 females can be expected by 1990.

Objective c. By 1990, reported primary and secondary syphilis incidence should be reduced to a rate of seven cases per 100,000 population per year, with a reduction in congenital syphilis to 1.5 cases per 100,000 children under one year of age.

Baseline In 1979, the reported incidence of primary and secondary syphilis was 11 cases per 100,000, and for congenital syphilis was 3.5 cases per 100,000 children under one year of age.

Status In 1984, the reported incidence of primary and secondary syphilis was 12 cases per 100,000, and for congenital syphilis was 6.5 cases per 100,000, live births.

Primary and Secondary Syphilis
(Case Rate per 100,000 Population)



Source: Centers for Disease Control

Comment Despite an initial rate following the baseline year, it is possible that this objective will be met. From 1979 through 1982 the rate of primary and secondary (P/S)

syphilis increased to 15 cases per 100,000 population, but in 1983 and 1984 declined to 12 cases per 100,000 population. The increase in P/S syphilis in earlier years was partly attributable to a shift of available resources from syphilis to gonorrhea. The subsequent decline of P/S syphilis case rates between 1982 and 1984 is believed to be due to (1) the improved funding picture of 1983 and 1984, leading to an actual increase in Federal resources for syphilis control, and (2) behavior changes in homosexual males to prevent AIDS.

The report of congenital syphilis has increased markedly in 1984 from its nadir in 1979 (3.5 cases per 100,000 live births). The recent increase is believed to be largely due to improved surveillance efforts and a new reporting form which includes an expanded case definition of congenital syphilis. With the overall decline reported in 1983-84 of P/S cases observed among both genders and continued improved prenatal care programs, the congenital syphilis rate is expected to decline, but perhaps not for the next several years until surveillance artifacts stabilize.

Objective d. By 1990, the incidence of serious neonatal infection due to sexually transmitted agents, especially herpes and chlamydia, should be reduced to a rate of 8.5 cases of neonatal disseminated cases of herpes per 100,000 children under one year of age and a rate of 360 cases of chlamydial pneumonia per 100,000 children under one year of age.

Baseline In 1979, the estimated rates were about 16.8 cases of neonatal dissemination herpes per 100,000 children under one year of age and about 720 cases of chlamydial pneumonia per 100,000 children under one year of age.

Status No current data are available.

Comment Because of lack of surveillance systems for tracking neonatal disseminated herpes and chlamydial pneumonia in children under one year of age, it is not possible to predict whether this objective will be met. In January 1984, CDC established a system for monitoring reported cases of genital herpes and chlamydial infections in males and females by each State. This system provides supplementary information, but no direct data, to assess the extent and trends in these neonatal infections due to sexually transmitted agents. Changes in overall trends for genital herpes and chlamydial infections should be reflected in changes in the neonatal infection rates.

In the case of genital herpes, educational efforts are underway: (1) to alert pregnant women to potential dangers of transmitted herpes infection to the newborn, and (2) to alert physicians to examine for current herpes infections among pregnant women and to surgically intervene when indicated.

Objective e. By 1990, reported nongonococcal urethritis incidence and chlamydial infections should be reduced to a rate of 770 cases per 100,000 population.

Baseline In 1979, the estimated rate was 1140 cases per 100,000 population.

Status No current data are available.

Comment Because data are not available to track progress, it is impossible to predict with certainty whether this objective will be met. In 1979, the CDC did not have a national surveillance system to collect data on the incidence of nongonococcal urethritis (NGU). Rather, CDC relied on visits to private physicians for NGU to provide evidence of trends in this condition. Consequently, the 1979 baseline and the 1990 objective were based on estimates and not hard data. In January 1984, CDC initiated a new surveillance system for collecting and monitoring reported cases of NGU. By 1990, States should have completed implementation of reporting laws and regulations, allowing adequate monitoring of this objective.

Most nongonococcal urethritis is associated with chlamydia. It is felt that this objective would be more useful if it were written in terms of chlamydial infection rather than NGU. Currently, CDC is evaluating traditional STD intervention activities, applied specifically to detect and treat chlamydia. Outreach activities include screening, sex partner identification and examination, and educational programs. The application of proven technology and intervention techniques over the next five years will allow achievement of a reported chlamydial infection rate of 960 cases per 100,000 population by 1990.

Current activities for preventing chlamydial infections and their complications already in place throughout the country include: (1) incorporation of information on the recognition and management of clinical syndromes commonly caused by *Chlamydia trachomatis* into all appropriate programs of medical education and training; (2) treatment of these chlamydial infections which frequently coexist with gonococcal infections by employing a gonorrhea treatment regimen which is effective against both organisms; (3) treatment on the basis of clinical syndrome alone of: (a) women who have purulent cervicitis, urethritis, or salpingitis, and (b) men who have urethritis or epididymitis, with antibiotics effective against both *N. gonorrhoeae* and *C. Trachomatis;* and, (4) treatment of sex partners of patients listed above with antichlamydial regimens.

RISK REDUCTION

Objective f. By 1990, the proportion of sexually active men and women protected by properly used condoms should increase to 25 percent of those at high risk of acquiring sexually transmitted diseases.

Baseline In 1979, the estimated proportion was less than 10 percent.

Status In 1982, 12 percent of young, single, sexually active women reported using condoms as their method of contraception. No data are available to measure trends in the number of men and women using condoms for protection against sexually transmitted diseases.

Comment Based on progress to date, it appears unlikely that this objective will be met. The data available for measuring progress on this objective report condom use for a

contraceptive purpose rather than a disease prevention purpose and can only be viewed as proxy measures.

Data from future national surveys such as those conducted by the National Center for Health Statistics and condom manufacturers can be used to measure the proportion of sexually active persons employing condoms as a prophylactic agent. The best demographic definition of "high-risk" groups for sexually transmitted diseases is limited to use of age, race, and marital status variables. Attaining the 1990 objective is predicated on access to condoms by high risk groups and sufficient resources for education for those groups about the prophylactic value of condoms. Improved educational methods may assist in meeting this objective by educating sexually active students in the prophylactic value of a properly used condom, especially in high-risk settings.

PUBLIC AND PROFESSIONAL AWARENESS

Objective g. By 1990, every junior and senior high school student in the United States should receive accurate, timely education about sexually transmitted diseases (STD).

Baseline In 1979, 70 percent of school systems provided some information about sexually transmitted diseases, but the quality and timing of the communication varied greatly.

Status In 1982, only 66 percent of metropolitan school systems provided systematic STD instruction.

Comment Based on limited available data for measuring progress to date, it appears unlikely that this objective will be met. The 66 percent is due in large part to the existence of community standards that may not allow STD instruction. The quality and effectiveness of the instruction varies considerably, depending on the instructor's STD knowledge and teaching abilities and the quality of educational materials used. There have been some recent advances, including a high quality textbook, in developing effective STD curricula.

Objective h. By 1990, at least 95 percent of health care providers seeing suspected cases of sexually transmitted diseases should be capable of diagnosing and treating all currently recognized sexually transmitted diseases, including: genital herpes, diagnosis by culture, therapy (if available) and patient education; hepatitis B among homosexual men, prevention through a vaccine (when proven effective), and patient education; and nongonococcal urethritis diagnosis, therapy and patient education.

Baseline Baseline data were not available.

Status

In 1980, less than one in ten medical schools offered its students clinical training in sexually transmitted disease (STD). To improve this situation, Federal funds were made available to produce a prototype STD curriculum and to support training in 18 locations. In addition, 10 CDC-supported prevention/training centers provided training to the nation's public and private clinicians.

Comment

Because data are limited and periodic surveys to monitor progress have not been available, it will probably not be possible to ascertain whether this objective will be met.

Although anecdotal reports and limited surveillance of medical education suggest that significant progress is being made toward achieving this objective, the objective is ambitious and extremely expensive to monitor. It is appropriate to place emphasis on improving the competence of public health care providers (in STD clinics, OB-GYN clinics, family planning clinics, etc.) since they see the majority of STD patients. In addition, certain key primary care specialities (family practice, internal medicine, pediatrics and obstetrics) should be targeted for clinical training in STD. Progress could be measured by the percentage of providers who are given accurate and timely information on all currently recognizable STDs, with 60 percent of all public health providers and key specialists being a more reasonable target for the 1990 objective.

IMPROVEMENT OF SERVICES

Objective i.

By 1990, at least 50 percent of major industries and governmental agencies offering screening and health promotion programs at the worksite should be providing sexually transmitted disease services (education and appropriate testing) within those programs.

Baseline

Baseline data were not available.

Status

Current data are not available.

Comment

Based on the lack of information available to track progress on this objective, it is not possible to predict whether it will be achieved. Periodic surveys would be necessary to determine the proportion of industries and agencies offering sexually transmitted diseases (STD) screening and health promotion programs at the worksite. An important aspect of this objective is the ability of sites to maintain the confidentiality of the information gathered from the testing or educational counseling of individuals.

The wording of the objective could be modified to read, "At least 50 percent of major industries and governmental agencies should offer educational material on STD." Such a modification reflects the difficulty in maintaining confidentiality at the worksite and the current availability of STD services in other nearby facilities. This objective could be attained by 1990 given adequate recognition and attention to this problem on the part of private and public organizations.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective j. By 1990, data should be available in adequate detail (but in statistical aggregate to preserve confidentiality) to determine the occurrence of nongonococcal urethritis, genital herpes, and other sexually transmitted diseases in each local area, and to recommend approaches for preventing sexually transmitted diseases and their complications.

Status In 1984, the CDC began implementation of a surveillance system for collecting and monitoring reported cases of a variety of sexually transmitted diseases (STD), including nongonococcal urethritis and genital herpes by each State.

Comment Based on progress to date, this objective will be met. As States implement their reporting laws and regulations (expected to be complete by 1990) regarding these conditions and achieve uniform definitions, an adequate surveillance system should be created. The system could be supplemented by periodic surveys and by information collected by other agencies and other organizations. Attainment is predicated on implementation of laws and regulations regarding diagnosis, treatment, and reporting of the these STDs. Recommended approaches for preventing a variety of STDs have already been developed. As diagnoses and treatments for other STDs become more effective and less costly, recommended control strategies will evolve.

Objective k. By 1990, surveillance systems should be sufficiently improved, so that at least 25 percent of sexually transmitted diseases diagnosed in medical facilities are reported, and that uniform definitions are used nationwide.

Baseline Baseline data were not available.

Status Current survey results indicate that at least 25 percent of treated sexually transmitted diseases are being reported. (Centers for Disease Control)

Comment Based on progress to date the first part of this objective has already been met and will continue to be monitored by the CDC. Plans call for standard definitions for major sexually transmitted diseases to be disseminated by 1990.

II. HEALTH PROTECTION

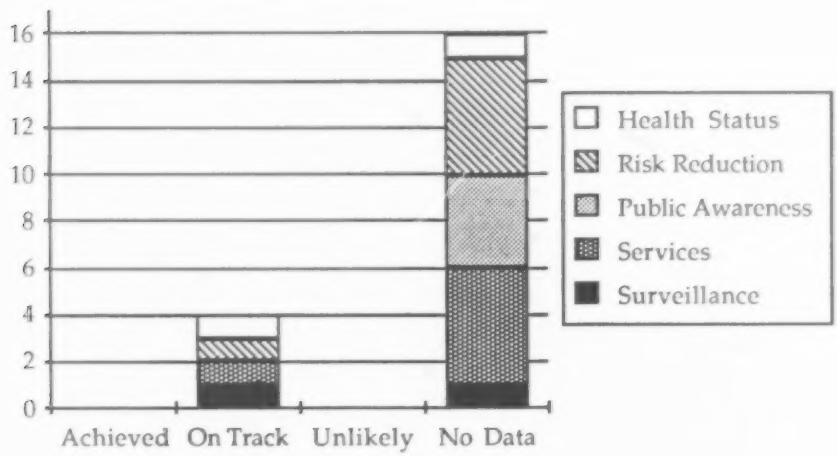
F. Toxic Agent and Radiation Control
G. Occupational Safety and Health
H. Accident Prevention and Injury Control
I. Fluoridation and Dental Health
J. Surveillance and Control of Infectious Diseases

Section F — Toxic Agent and Radiation Control

The Toxic Agent and Radiation Control objectives reflect a relatively new perspective on environmental hazards. In the previous two decades serious national concern was given to the dangers imposed by people on their environment. The new perspective relates to protecting people from dangers in their environment. Only within recent years has control of toxic agents in the environment become a public health priority. For a slightly longer period, concern about the harmful effects of radiation has been a health issue and research on the health effects of radiation has been ongoing for a number of years.

The midcourse status of the objectives in this priority area is a function of its relatively embroynic stage of development. The objectives themselves were developed on the basis of the most advanced knowledge available in the late 1970s but with very little in the way of baseline data. Though significant advances have occurred in health protection against dangerous toxic exposure, these advances

Status of Toxic Agent & Radiation Control
(20 Objectives)



have not necessarily followed the track proposed by these objectives. The result of the midcourse review of the objectives themselves suggests that very little is actually known about toxic agent control. This picture is put into more accurate focus by the commentary on the objectives which provides explanation of the progress that has been made in this field.

IMPROVEMENT OF HEALTH STATUS

Objective a. By 1990, 80 percent of communities should experience a prevalence rate of lead toxicity of less than 500/100,000 among children ages six months to five years, especially age six months to one year.

Baseline In 1980, the estimated prevalence of lead toxicity nationally in children aged six months to five years was 4,000/100,000.

NOTE: At the time this objective was drafted, lead toxicity was defined as an erythrocyte protoporphyrin level exceeding 50 mg/dl whole blood and a blood lead level exceeding 30 mg/dl. Based on this definition, the prevalence of lead toxicity nationally in 1980 was originally estimated to be in excess of 1,000/100,000 children ages six months to five years. The baseline estimate reported above has been revised to reflect the new definition of lead toxicity adopted in 1985 (see comment section).

Status There are no national data available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Because no national data are available, it is not possible to evaluate progress toward achieving this objective. Two factors make it difficult to track this objective. First, no mechanism now exists for collecting reliable national data on the prevalence of lead toxicity in children, let alone data at the community level. Until such a data collection system is in place, it will be virtually impossible to track this or any other objective targeting blood lead levels in children.

The ever-changing nature of the term "lead toxicity" is the second reason progress toward this objective is difficult to measure. The CDC changed the definition for lead toxicity used in its programs in 1985 from the one used when this objective was written to one based on an erythrocyte protoporphyrin (EP) level greater than 35 ug/dL and a blood lead level (PbB) of 25 ug/dL or more. If this new definition had been used to establish the baseline for this objective, the estimated prevalence in 1980 of lead toxicity nationally in children aged six months to five years would have been 9,000/100,000 (National Health and Nutrition Examination Survey II) instead of 4,000/100,000. The prevalence rate for lead toxicity among children aged six months to five years will increase substantially if States and localities adopt the new CDC definition.

Approximately 37 million housing units in the United States today contain lead paint, and a substantial number are likely to continue in this condition for decades to come. The cost of effective lead paint abatement is high and poses a

significant impediment to State and local efforts aimed at reducing the prevalence of lead toxicity among children. Even if less costly methods for removing lead-based paint were to be developed, it would be a while before they would be put into wide-spread use, since most housing codes do not provide States and localities with an adequate mechanism for dealing with the lead paint problem. Careless disposal of paint after its removal from houses, the continued use of leaded gasoline, and the difficulty of removing lead from other environmental sources, such as contaminated soil, significantly influence the degree to which lead toxicity prevalence rates among children can be expected to change by the end of this decade. National, State and local efforts to limit the exposure of children to environmental lead, especially lead-based paint, educate the public about the health effects of lead, as well as identify and follow children at risk for lead toxicity must continue if this objective is to come within reach.

Objective b. By 1990, significant progress should have been made toward preventing birth defects or miscarriages resulting from exposure to toxic substances through environmental interventions based on current information and expansion of the knowledge base related to hazardous substances and their reproductive effects.

Baseline Baseline data were not available.

Status Progress has been made in this area where specific causes of birth defects have been identified and where components of the surveillance system necessary to monitor adverse reproductive outcomes are in place.

Comment Based on progress to date, it appears likely that the intent of this objective will be realized in those instances where the specific antecedents of birth defects can be identified. More information is needed about the molecular, cellular, and systemic effects of the myriad man-made and naturally occurring substances to which humans are exposed, as well as the basic processes underlying normal reproduction and fetal development, before a substantial reduction in adverse pregnancy outcomes attributable to toxic substances can occur. Because this is a qualitative rather than a quantitative objective, it is not possible to comment on the rate of progress or the amount of progress that has been made toward its achievement.

Public and private sector efforts to pinpoint those factors leading to fetal malformation, miscarriage and other adverse pregnancy outcomes, must be strengthened if this objective is to be reached. Four areas that deserve special attention are: (1) the development of new epidemiologic techniques for identifying the causes of fetal malformation and other adverse pregnancy outcomes, (2) the identification of individual elements influencing the susceptibility of the reproductive system and the embryo to injury by toxic agents, (3) the development of valid *in vitro* animal tests that can be used as a means for determining those agents that disrupt embryonic development and the reproductive process and as a means for investigating mechanisms underlying environmentally-mediated changes, and (4) the advancement of methods available for monitoring and quantitatively assessing the effects of environmental agents on human reproduction and development.

Surveillance systems have been initiated which should provide the essential baseline and ongoing data necessary for this objective. For example, the Center for Environmental Health, Centers for Disease Control (CDC), is working with a

number of States to develop State-based birth defects surveillance programs. Cooperative agreements have been initiated with six States for reproductive outcome surveillance programs that are specifically directed at examining relationships between adverse reproductive outcomes and environmental exposures. CDC's National Institute for Occupational Safety and Health (NIOSH) also is working with State health departments to assist in monitoring births and fetal deaths for associations with parental occupation and industry.

One of the CDC surveillance systems, the Birth Defects Monitoring Program (BDMP), tracks the incidence of birth defects and other newborn conditions in a total of 161 different categories. Currently 928 hospitals across the United States report to the system. Data from the BDMP and other CDC surveillance systems indicate that major congenital malformations from all causes, not just exposure to toxic substances, occur in 2 to 3 percent of babies.

The methods developed and the data obtained through these cooperative activities will allow epidemiologic investigations and applied research to further elucidate the reproductive effects of hazardous substances. Federal programs to test chemicals for their effects on prenatal and early postnatal development, fertility, and reproductive functions, such as the DHHS National Toxicology Program (NTP), also will provide information necessary to reach this objective.

Birth defects, miscarriage, and other adverse pregnancy outcomes resulting from exposure to toxic substances will continue to pose a problem for the American people through the end of this century, but it is a problem that can be greatly reduced in scope through the combined efforts of Federal, State and local governments, voluntary organizations, business and industry, and the health professions.

RISK REDUCTION

Objective c. By 1990, virtually all communities should experience no more than one day per year when air quality exceeds an individual ambient air quality standard with respect to sulfur dioxide, carbon monoxide, lead, hydrocarbon, and particulate matter.

Baseline In 1979, the level was estimated to be about 50 percent.

Status There are no national data to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Because no data are available, it is not possible to evaluate progress toward achieving this objective. The problems with this objective, however, go beyond the lack of a tracking system or other mechanism for evaluating progress. The objective as stated includes some air pollutants for which National Ambient Air Quality Standards (NAAQS) have not been established. The pollutants for which NAAQS have been established are: carbon monoxide, lead, particulate matter, nitrogen dioxide, ozone, and sulfur oxides.

In the 1970 amendments to the Clean Air Act, Congress directed the Environmental Protection Agency (EPA) to establish programs to control air pollution to protect human health. Major research, control technology, regulatory, and monitoring initiatives were implemented in cooperation with State and local authorities to reduce emissions of the six criteria air pollutants listed above. The Clean Air Act also requires that EPA establish National Emissions Standards for Hazardous Pollutants (NESHAPS) to control the emission of substances so toxic that even small amounts may adversely effect health. EPA has established NESHAPS for asbestos, berylium, mercury, and vinyl chloride, and has proposed standards for benzene and arsenic. To control pollution from mobile sources, the Clean Air Act and supporting regulations provide for automobile emission controls that have become more stringent as increasingly effective technology has developed. The use of catalytic converters and unleaded gasoline in newer model cars has been particularly important in achieving better air quality despite a continuing rise in the number of motor vehicles on the road.

To help ensure compliance with air quality standards by stationary sources, EPA sets New Source Performance Standards that limit emissions allowed from new industrial plants and existing plants that are substantially modified. Standards are now in effect for most major industries. Because national performance standards apply only to new or modified plans, these controls generally are not adequate in themselves to assure acceptable air quality. State governments must therefore draw up and enforce State Implementation Plans (SIPS) which spell out additional measures that will be taken to achieve compliance. Typically these include controls on older industrial plants and other stationary sources of pollution, along with measures to cut back traffic volumes or in other ways reduce emissions related to motor vehicles. SIPS are subject to EPA approval. If a State plan is not acceptable, EPA is required to provide an implementation plan which the State must then enforce. Inspection and maintenance programs in 28 States are playing a vital role in air pollution control, especially in urban areas where motor vehicles generate about half of the carbon monoxide emissions.

In recent years, the nation has seen a steady improvement in air quality. Since 1975 the ambient levels of all six criteria pollutants have decreased, in some cases dramatically. Ambient lead, for example, has dropped already to 64 percent, largely due to the increasing use of unleaded gasoline. Particulate levels decreased by 15 percent, ozone levels by 18 percent. Although nitrogen dioxide levels increased between 1975 and 1979, they began dropping in 1979; by 1982, ambient levels were the same as in 1975, and well below the standard. The number of times that the standards were exceeded also dropped significantly during this time.

Objective d. By 1990, at least 95 percent of the population should be served by community water systems that meet Federal and State standards for safe drinking water.

Baseline In 1979, the level was 85 to 90 percent for the National Interim Primary Drinking Water Standards.

Status There are no national data to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Because no data are available, it is not possible to evaluate progress toward achieving this objective. Even though there is no system, either now in place or

under development, that would provide the information necessary to monitor progress toward this objective, Federal, State and local governments are working to ensure the safety of the nation's drinking water.

Under the Safe Drinking Water Act of 1974 and its 1977 amendments, the Environmental Protection Agency (EPA) has the authority to establish national standards for drinking water from both surface and ground water sources. These standards provide maximum containment levels (MCLs) for pollutants in drinking water. States are primarily responsible for enforcing the standards, with financial assistance from EPA. The Safe Drinking Water Act also authorizes EPA to protect aquifers, or underground sources of water, against contamination from disposal of wastes by injection into deep wells. Some States have assumed responsibility for managing these underground injection control programs as they develop their regulatory systems. To date, EPA has recommended standards for almost 40 different chemicals in drinking water. The number of public water systems routinely monitored has tripled since 1970.

Objective e. By 1990, there should be virtually no preventable contamination of ground water, surface water or the soil from industrial toxins associated with wastewater management systems established after 1980.

Baseline Baseline data were not available.

Status There are no national data to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Because no data are available, it is not possible to evaluate progress toward achieving this objective. The focus of this objective is limited to wastewater contamination and does not address other potent mechanisms through which water and soil can be contaminated, such as solid wastes and airborne toxins. The objective also does not address contaminants from other than an industrial origin.

The Clean Water Act is designed to clean up and maintain the quality of the nation's rivers and streams. EPA works with States to adopt water quality standards, establish limits on pollutant discharges by industries and municipalities into rivers and streams, develop permits and enforce discharge limits, and fund municipal treatment works. A key to the surface water pollution control program is the State designation system, which identifies pollution control actions required to meet and maintain the waterbodies' designated uses. Progress has been made in ensuring that waterbodies meet their designated uses. Since 1972, 296,000 stream miles were reported to have maintained the same level of water quality; 47,000 miles improved; and 11,000 miles degraded. Additionally, pollutant discharges from municipal plants are estimated to have decreased 46 percent and a billion pounds of toxics are removed annually due to EPA controls.

In 1976, Congress enacted the Resource Conservation and Recovery Act (RCRA), which authorized EPA to regulate current and future waste management disposal practices. EPA's major priority under the Act has been the development of "cradle-to-grave" regulations governing the generation, storage, transport, treatment, and disposal of hazardous wastes. These wastes include toxic substances, caustics, pesticides, and other flammable, corrosive, or explosive materials. Another major goal under RCRA is to encourage States to develop comprehensive programs for managing nonhazardous solid waste, and every State now has a solid waste management agency.

Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or "Superfund") in 1980 to deal with the legacy of abandoned waste sites or emergencies created by spills or other releases of hazardous substances. Superfund gives EPA the authority to respond to hazardous substance emergencies which threaten public health or the environment; it also gives the Department of Health and Human Services the authority to conduct testing of suspect chemicals and studies of health effects. Superfund authorizes EPA to undertake immediate and planned removals in emergency situations and to take long-term, remedial actions to achieve a permanent cleanup of hazardous waste sites. Remedial actions are permitted only at sites identified on EPA's National Priorities List. To date, more than 500 sites in 47 States and five territories have been declared eligible for remedial actions. In addition to cost-sharing on cleanup priorities, States participate in site selection and in establishing clean-up priorities. States must designate approved sites to receive wastes removed in cleanup operations.

Objective f.

By 1990, there should be no pesticides, herbicides, fungicides, or rodenticides available for sale which are known to be carcinogenic, teratogenic or mutagenic in man, unless determined to be vital to the national interest under certain conditions.

Baseline

Baseline data were not available.

Status

A complete listing of toxic pesticides, herbicides, fungicides, and rodenticides has not been developed. Therefore, it is not possible to determine how many remain on the market.

Comment

Because no data are available, it is not possible to evaluate progress toward achieving this objective. Because only about 600 active ingredients are used in the manufacture of pesticides, herbicides, fungicides, and rodenticides, the Environmental Protection Agency (EPA) is developing comprehensive scientific standards for each of the active ingredients rather than registering each product on a case-by-case basis. EPA has developed and published scientific standards, or registration standards, for 100 active ingredients. These standards set forth the scientific data necessary to determine whether a particular pesticide, herbicide, fungicide, or rodenticide presents an unreasonable threat to human health or the environment.

As mandated under the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act of 1972, EPA considers both the risks and benefits of a new or existing product when evaluating whether it should be approved for use or continued use. Pesticides that do not cause "unreasonable adverse effects" in humans or the environment are generally approved. EPA's objective is to remove pesticides thought to have possible carcinogenic, teratogenic, or mutagenic effects in humans from the market only when the risks of adverse outcome due to their use outweigh the benefits attendant on their use. Realizing the full intent of this objective will require continued national, State, and local efforts to identify those pesticides, herbicides, fungicides, or rodenticides that pose an unacceptable risk to human health or the environment.

Objective g. By 1990, inhalation of fumes from toxic materials during transportation of such materials should be eliminated.

Baseline Baseline data were not available.

Status There are national data to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Because no data are available, it is not possible to evaluate progress toward achieving this objective. The Department of Transportation (DOT) is authorized and has established programs to regulate the transport of hazardous materials. As an extension of this effort, the States are responsible for enforcing transportation regulations. In addition, in cooperation with the Occupational Safety and Health Administration (OSHA), most States have established labeling requirements and programs whereby shippers are required to provide health and safety data on materials before they will be accepted for shipment. The data include a description of the material, information on how to handle it, and instructions on how to deal with problems or emergencies such as spills or toxic fumes. The EPA, by rule under the Toxic Substances Control Act, requires the chemical industry to report on and keep records on the manufacture, processing, use, and disposal of chemical substances, by-products generated by manufacture, and other relevant information, including all significant adverse reactions to health and the environment alleged to have been caused by a chemical. The objective might more appropriately be stated to focus on provision of air-tight and leak-proof containers for purposes of transportation and storage rather than inhalation of toxic fumes.

Objective h. By 1990, the number of medically unnecessary diagnostic x-ray examinations should be reduced by some 50 million examinations annually.

Baseline In 1979, the number of diagnostic x-ray examinations performed in the United States annually was 278 million, of which 83 million were estimated to be medically unnecessary.

Status The Food and Drug Administration (FDA), in close cooperation with the American College of Radiology, is in the process of developing five voluntary guidelines to help practicing clinicians decide on the usefulness of various x-ray examinations.

Comment Based on progress to date, it appears that this objective will be met. Current estimates suggest that the five guidelines being developed by FDA address the majority of medically unnecessary exposures. Broad acceptance of the guidelines by the health care community should ensure that the targeted reduction of 50 million unnecessary diagnostic x-ray examinations is reached by 1990.

The guidelines, known as "referral criteria," are developed by expert panels of radiologists, practicing physicians, and representatives of other specialty groups. Referral criteria are ideally based on analyses of large quantities of patient data, but where such data bases are lacking, guidelines can also be established by disseminating the consensus opinion of a body of experts about the clinical circumstances under which a procedure is likely to provide needed information and those circumstances under which it is unlikely to be useful. The FDA x-ray refer-

ral criteria will provide practitioners and the public with the latest thinking of experts in a given field about the value of a particular examination or procedure. Each of the referral criteria is to review the use of a particular diagnostic radiology procedure under certain conditions, as determined by the patient's history and health status.

FDA has completed and published two of the five referral criteria, one on x-ray pelvimetry and one on routine chest x-ray screening. The pelvimetry policy statement, the first to be released, was jointly signed by FDA, the American College of Radiology, and the American College of Obstetricians and Gynecologists. While the vast majority of obstetricians and radiologists had known for a long time that x-ray pelvimetry is generally of little use in managing pregnant patients, pelvimetry was still being used in about seven percent of live births in the United States as late as 1980. The use of pelvimetry had been declining gradually, but experts believe the release and widespread dissemination of the pelvimetry referral criteria in 1981 triggered a much sharper dip in the curve than would have occurred otherwise. By 1984 the national pelvimetry rate was only two percent.

The success of the pelvimetry guidelines in changing long-established patterns of behavior suggests that when clinicians are presented with clear, cogent reasons for reducing unnecessary medical radiation exposure, they will do so. FDA will soon have criteria available for presurgical chest x-rays, skull radiography after trauma, and dental radiographs. The feasibility of developing referral criteria for x-ray examinations of extremities is now under consideration. FDA anticipates that public and private sector efforts to facilitate the acceptance of the guidelines as well as continuing routine surveillance of radiology practice will confirm that this objective will be met on schedule.

PUBLIC AND PROFESSIONAL AWARENESS

Objective i. By 1990, at least 75 percent of all city council members in urban communities should be able to report accurately whether or not the quality of the air and water has improved or worsened over the decade and to identify the principal substances of concern.

Baseline Baseline data were not available.

Status There are no national data available to measure either directly or indirectly progress toward attainment of this objective.

Comment Because no national data are available, it is not possible to comment on the likelihood of reaching this objective. No means currently exist for surveying and measuring the knowledge of city council members regarding air and water quality. Although there are no firm national data pertaining to the issues addressed in this objective, concern about and knowledge of the various factors affecting air and water quality appear to be steadily increasing.

Today, environmental and public health officials at State and local levels have numerous opportunities available to them for increasing their knowledge of air

and water quality issues. Local elected officials, such as city council members, are usually informed about local environmental conditions by environmental and public health officials in their State or locality.

The Environmental Protection Agency (EPA) is the principal source of information on air and water quality at the Federal level. The Department of Health and Human Services (HHS) is primarily concerned with impact of contaminated air and water on the public health. Generally, environmental sampling is done by EPA or its counterpart agencies at the State and local level. HHS becomes involved when environmental test samples exceed EPA standards for specific substances and thereby raise the question of whether the residents of the test area are at risk for adverse health effects. HHS also contributes to the scientific knowledge base on environmental health hazards through toxicologic studies performed at the National Toxicology Program and human epidemiologic studies conducted by the CDC and other PHS agencies.

Objective j. By 1990, at least half of all adults should be able to report accurately an accessible source of information on toxic substances to which they may be exposed, including interactions with other factors such as smoking and medications.

Baseline Baseline data were not available.

Status There are no national data available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Because no data are available, it is not possible to evaluate progress toward achieving this objective. Extensive news coverage, both in the print and electronic media, of environmental hazards is serving to make the general public aware of the health effects of toxic substances. Even though widespread media coverage has been able to focus public attention on this important issue, more public education is needed if the target set for this objective is to be reached. These efforts should use methods shown to be effective in reaching the largest number of people, such as public service announcements and classes in public schools. Progress toward meeting this objective will remain difficult to measure until some means are developed for surveying and measuring the public's knowledge regarding toxic substances and their effects.

Objective k. By 1990, at least half of all people ages 15 years and older should be able to identify the major categories of environmental threats to health and note some of the health consequences of those threats.

Baseline Baseline data were not available.

Status There are no national data available that directly or indirectly measure progress toward this objective.

Comment Because no data are available that directly or indirectly measure this objective, it is not possible to comment on the likelihood that it will be achieved by 1990. Data

from five national household surveys conducted for other purposes do provide some insight as to what percentage of the U.S. adult population considers certain environmental factors to be health hazards.

- Provisional data from the 1985 Disease Prevention and Health Promotion Supplement to the National Health Interview Survey indicate 35 percent of the U.S. population aged 18 and older identify themselves as having jobs in which they are exposed to substances, such as chemicals, dust, fumes or gases, that could endanger their health.
- Wave II of the National Survey of Personal Health Practices and Consequences, conducted in 1980, found that 18 percent of the men surveyed and nine percent of the women had jobs in which they were exposed to substances that posed a risk to health.
- Wave I of the National Survey of Personal Health Practices and Consequences, conducted in 1979, found that 50 percent of the men and 24 percent of the women surveyed reported having jobs in which they were exposed to special risk of accidents or injuries or to substances that endanger their health.
- Data collected as part of a survey to examine the attitudes of family members towards health and health care, conducted in 1978 by General Mills, found varying percentages of adults believed the following factors to be threats to good health:

Environmental Factor	Percent of Adults
Industrial Waste	93
Pollution	92
Cigarettes	90
Nuclear Power Plants	75
Pesticides and Fertilizers	85

- Data collected as part of a 1978 survey conducted by the Tobacco Institute to determine public attitudes toward cigarette smoking found varying percentages of adults believed the following factors to be threats to good health:

Environmental Factor	Percent of Adults
Cigarette Smoke	82
Aerosol Can	62
Automobile Emissions	38
Microwaves	78

While these data shed some light on the extent to which adults may perceive certain factors as threats to health, they provide no information on the ability of persons 15 and over to identify health consequences for each environmental factor.

The electronic and print media regularly report on environmental hazards. These reports and feature stories serve to focus national attention on the problem of toxic substances in the environment and the threats they pose to health. This widespread coverage has alerted the general public, particularly adolescents and young adults, to the existence of various environmental health hazards, but further efforts to educate the public about specific environmental health issues are needed if the intent of this objective is to be realized. Progress toward this objective will remain difficult to measure until some means are developed for surveying and measuring the public's knowledge about toxic substances and their health consequences.

Objective l. By 1990, at least 70 percent of all primary care providers should be able to identify the principal health consequences of exposure to each of the major categories of environmental threats to health.

Baseline Baseline data were not available.

Status There are no national data available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Because no national data are available, it is not possible to evaluate progress toward achieving this objective. Because it is still difficult to pinpoint the exact role environmental and occupational exposures play in any individual disease state, primary care providers may not routinely consider environmental and occupational exposures when taking health histories or making diagnoses. Undoubtedly, this will change as research yields the information necessary to identify and characterize the health effects of an increasing number of toxic substances.

Attainment of this objective will require continued national, State, and local efforts to identify links between environmental or occupational exposure and various disease conditions. As more is learned about the existence of and scientific basis for environmentally or occupationally related disease states, a mechanism for disseminating this information widely to health care practitioners will have to be developed. Basic, graduate, and continuing-education curricula are an important resource for reaching health professionals with this information and for encouraging them to include those procedures known to be effective means for identifying environmental and occupational risks to a patient's health in each clinical encounter.

Progress toward this objective will remain difficult to measure until a mechanism for determining the extent of health care provider knowledge about this subject is designed. Periodic surveys or other tracking systems are pivotal to better understanding gaps in provider knowledge about environmental and occupational health hazards and developing appropriate strategies to remedy them.

IMPROVEMENT OF SERVICES

Objective m. By 1990, at least 90 percent of all children identified with lead toxicity in the birth to five age group (especially those age one to three) should have been brought under medical and environmental management.

NOTE: At the time this objective was drafted, lead toxicity was defined as an erythrocyte protoporphyrin level exceeding 50 ug/dL whole blood and a blood lead level exceeding 30 ug/dL. CDC revised the definition of lead toxicity in 1985, lowering the threshold laboratory values required for diagnosis.

Baseline Baseline data were not available. At the time this objective was drafted, approximately 34,000 children ages one to five with lead toxicity were reported annually from federally supported programs, and an estimated one percent of the U.S. population aged one to five had lead toxicity.

Status

There are no national data available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment

Because no national data are available, it is not possible to evaluate progress toward achieving this objective. Two factors make it difficult to track this objective. First, no mechanism now exists for collecting reliable national data on the prevalence of lead toxicity in children, let alone what percentage of children with lead toxicity are being brought under medical and environmental management. Until such a data collection system is in place it will be virtually impossible to track this or any other objective targeting blood levels in children.

The ever-changing nature of the term "lead toxicity" is the second reason progress toward this objective is difficult to measure. CDC changed the definition for lead toxicity used in its programs in 1985 from the one used when this objective was written to one based on an erythrocyte protoporphyrin (EP) level greater than 35 ug/dL and a blood lead level (PbB) of 25 ug/dL or more. The prevalence rate for lead toxicity among children will increase substantially if States and localities adopt the new CDC definition. Such a sudden and marked increase in the number of children identified as having lead toxicity might place the target stated in this objective, of having 90 percent of all children (birth to five years) with lead toxicity under medical and environmental management by 1990, beyond society's ability to respond.

Approximately 37 million housing units in the United States today contain lead paint, and a substantial number are likely to continue in this condition for decades to come. The cost of effective lead paint abatement is high and poses a significant impediment for State and local efforts aimed at reducing the prevalence of lead toxicity among children. The high cost of lead paint abatement is a particular problem when a child living in a housing unit with lead paint is identified as having lead toxicity. Even if less costly methods for removing lead-based paint were to be developed, it will take a while before such methods could be put into wide-spread use. Another factor adversely influencing progress toward this objective is the fact that most housing codes do not provide States and localities with an adequate means for reducing lead-based paint hazards.

Careless disposal of paint after its removal from housing units, the continued use of leaded gasoline, and the difficulty of removing lead from other environmental sources, such as soil, significantly influence the degree to which environmental lead sources can be managed for children with lead toxicity. National, State and local efforts to limit the exposure of children to environmental lead, especially lead-based paint, educate the public about the health effects of lead, as well as identify and follow children with or at risk for developing lead toxicity, must continue if this objective is to come within reach.

Objective n.

By 1990, the Toxic Substances Control Act and the Resource Conservation and Recovery Act should be fully implemented to protect the U.S. population against hazards resulting from production, use, and disposal of toxic chemicals.

Baseline

Baseline data were not available.

Status

Several Federal agencies are participating in the implementation of these laws.

Comment

Based on progress to date, it appears that the intent of this objective will be realized. Progress in health-related matters should be furthered as a result of legislation passed subsequent to the two Acts mentioned in this objective. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 enlarges the scope of HHS activities undertaken to protect the population from adverse health effects as a result of exposure to toxic chemicals during their production, use, or disposal. For example, the Agency for Toxic Substance and Disease Registries is given health related responsibilities, and the National Toxicology Program and the National Institute of Environmental Health Sciences are given research and testing authorities. As part of that same piece of legislation, the National Library of Medicine is required to establish an inventory of literature, research, and studies on the health effects of toxic substances.

The Environmental Protection Agency (EPA) estimates that about 235 to 250 individual standards for chemicals worthy of priority action will be completed by 1990. These standards should provide the means for controlling significant risks resulting from the production, use, and disposal of priority toxic chemicals, thereby substantially reducing the potential for these substances to adversely effect the health of the American people.

EPA also has obtained information on over 15,000 uncontrolled hazardous waste sites. EPA's site data are contained in an automated data system known as ERRIS, Emergency and Remedial Response Information System. The regions are now in the process of screening and assessing these sites to determine the nature and severity of the problem they present. To date, the regions have conducted preliminary assessments at over 5,000 sites and on-site inspections at over 2,000 sites. Of these, 2,400 sites have been determined to require no further action. EPA is undertaking more extensive site investigations, including sampling, lab analysis, and expert technical assessments, at the most serious of these sites.

It is important to note that this objective, as currently stated, is unclear as to the desired outcomes. One possible interpretation is that the aim of this objective is to protect the public against all hazardous chemicals by 1990. Another interpretation is that the intent of this objective is to ensure that all sections of the two Acts mentioned in the statement are applied by 1990. While progress toward this objective would be easier to assess if it were restated, the measures used to track this objective will focus on the identification of chemicals worthy of priority attention and the implementation of appropriate assessment or risk management activities.

Objective o.

By 1990, individuals purchasing a potentially toxic product sold commercially or used industrially should be protected by clear labeling as to content, as to direction for proper use and disposal, and as to factors that may make that individual especially susceptible (health status, age, sex, medications, genetic traits).

Baseline

Baseline data were not available.

Status

There are no national data available that measure either directly or indirectly progress toward attainment of this objective.

Comment

Because no national data are available, it is not possible to comment on the likelihood of achieving this objective by 1990. Three separate elements of the labeling issue have to be addressed if this objective is to be realized:

(1) labeling for industrial use,
(2) labeling for consumer use, and
(3) labeling for transportation.

A Material Safety Data Sheet (MSDS) containing use and safety information typically accompanies shipments of many chemical substances, or is available from the manufacturer. The Occupational Safety and Health Administration (OSHA) Hazard Communication Rule requires MSDSs for all chemical substances. The Environmental Protection Agency's (EPA) new chemical program, called premanufacture notification (PMN), should provide additional progress in the area of industrial labeling as the PMN review often raises issues that result in the addition of warning statements or special directions to a Material Safety Data Sheet.

Both the Consumer Product Safety Commission and the Department of Transportation have labeling requirements that address consumer and transportation risks. In addition, EPA is acting to help ensure individuals purchasing and using registered pesticides are protected by clear labeling as to content and directions for proper use and disposal.

More information concerning the health effects of toxic chemicals is needed before a feasible strategy can be developed to address the portion of this objective calling for the provision of detailed information concerning the likelihood that an individual purchasing a potentially toxic product will experience an adverse health effect as a result of using that product.

Objective p. By 1990, every individual should have access to an acute care facility with the capability to provide, or make appropriate referrals for, screening, diagnosis, and treatment of suspected exposure to toxic agents.

Baseline Baseline data were not available.

Status There are no national data available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Because no national data are available, it is not possible to evaluate progress toward achieving this objective. A number of Federally sponsored programs, however, do serve as a resource for health care professionals who find themselves in need of information concerning toxic agents. Every health care provider in the United States with access to a computer terminal and a telecommunication system can use TOXNET, the National Library of Medicine's toxicology data network, to acquire information on potentially toxic chemicals. The Hazardous Substances Data Bank, one of the TOXNET data files, contains information on the molecular formulation, methods of manufacture, and major uses of over 4,000 chemicals entities, as well as the effects a particular chemical can have on the human body, screening methods, and emergency treatment measures. TOXNET is available 24 hours a day, seven days a week, at an hourly charge, via computer telecommunication. Persons interested in gaining access to the TOXNET System may contact the National Library of Medicine (301-496-6531) for information on current procedures.

The CDC offers an informal call-in service for persons in need of information concerning the diagnosis and treatment of exposure to industrial chemicals and

pesticides. Callers are referred to the appropriate expert by means of a resource guide. If the caller requests information on substances other than industrial chemicals or pesticides, such as exposure to a drug, the caller will be referred to his or her local poison control center. The Center for Environmental Health and Injury Control, within CDC, also sponsors an annual environmental health conference which provides valuable training to clinicians regarding the diagnosis and treatment of exposure to toxic agents.

Objective q. By 1990, every individual residing in an area of a population density greater than 20 per square mile or an area of particularly high risk should be protected by an early warning system designed to detect the most serious environmental hazards posing imminent threats to health.

Baseline Baseline data were not available.

Status There are no national data available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Because no national data are available, it is not possible to comment on the likelihood this objective will be reached. The individual elements necessary to establish a comprehensive early warning system such as the one described in this objective do not now exist. There are, however, other systems in place which monitor various health outcomes. The Birth Defects Monitoring System, for example, tracks various adverse pregnancy outcomes. These data can be used to determine the etiology of the condition, including any possible association between the occurrence of birth defects and toxic waste disposal sites or other environmental hazard.

Another system now under development, known as the Sentinel Disease System, will monitor relatively rare diseases that have few known causes. Information from this database will provide analysts with a means for looking at whether there is a link between a particular disease and either a low level exposure to one or more environmental hazards or an inadvertent, unsuspected high level exposure to one or more hazardous environmental agents. The following are examples of diseases which have been linked to toxic agents:

- Aplastic anemia has been linked to benzene, ionizing radiation, and certain medications.
- Asbestosis and mesothelioma have been linked to asbestos.
- Soft tissue sarcomas have been linked to phenoxycetate acid herbicides.
- Osteosarcomas have been linked to ionizing radiation.
- Angiosarcoma of the liver has been linked to vinyl chloride and anabolic steroids.

Objective r. By 1990, every populated area of the country should be able to be reached within six hours by an emergency response team in the event of exposure to an environmental hazard posing acute threats to health from a toxic agent, chemical and/or radiation.

Baseline Baseline data were not available.

Status There are no national data available that measure either directly or indirectly progress toward attainment of this objective.

Comment Because no national data are available, it is not possible to comment on the likelihood of realizing the intent of this objective by 1990. Emergency response to environmental hazards is being addressed individually by the States, or, in some instances, with the assistance of the Federal Emergency Management Agency. While a State-based emergency response system exists, the capabilities of the individual States as well as the nature and extent of the emergencies the systems are equipped to handle vary considerably. The numerous differences in the systems the States have set up make it difficult to assess progress toward attaining this objective.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective s. By 1990, a broad scale surveillance and monitoring system should have been planned to discern and measure known environmental hazards of a continuing nature as well as those resulting from isolated incidents. Such activities should be continuously carried out at both Federal and State levels.

Baseline Baseline data were not available.

Status The databases necessary to design the broad scale surveillance and monitoring system described in this objective do not now exist.

Comment The diverse elements necessary to establish the surveillance and monitoring system described in this objective do not now exist, and it is difficult to predict the amount of progress toward ameliorating this problem that is likely to occur over the next several years. Thus, it is not possible to comment on the probability the intent of this objective will be realized by 1990.

While a plan for monitoring all known environmental hazards may be more of an ideal than a reality, considerable progress has been made in the surveillance and monitoring of specific hazardous substances. The Environmental Protection Agency (EPA), Office of Pesticides and Toxic Substances, has developed a system for tracking the concentration of certain chemicals in human tissue and blood. This program has been used to monitor the implementation of EPA's polychlorinated byphenyls (PCB) regulations by documenting the decrease in PCB residues in humans. EPA issued a national plan for monitoring pesticides in July of 1985. The plan provides a comprehensive overview of current Federal, State, and local pesticide monitoring activities. EPA will update the National Pesticide Monitoring Plan periodically, describing long range plans within the public and private sectors for tracking pesticide levels as they develop.

Objective t. By 1990, a central clearinghouse for observations of agent/disease relationships and host susceptibility factors should be fully operational, as well as a national environmental data registry to collect and catalogue information on concentrations of hazardous agents in air, food and water.

Baseline Baseline data were not available.

Status A number of ongoing activities at the National Library of Medicine are directed toward attainment of this objective.

Comment Based on progress to date, it appears likely the first element of this objective will be realized by 1990. The second element, calling for the creation of a national environmental data registry to collect and catalogue information on hazardous agents in the air, food and water, is not readily accomplished.

The National Library of Medicine (NLM) sponsors a number of activities that contribute to efforts directed at achieving the first part of this objective. These projects provide information to the public and private sectors through a variety of means in several agent/disease topic areas. The NLM public on-line files, such as MEDLINE, TOXLINE, and the new Hazardous Toxicology Data Bank (formerly called the Toxicology Data Bank), are important parts of its public information effort. A related activity is the NLM-sponsored Toxicology Information Response Center located at the Oak Ridge National Laboratory.

The establishment of collaborative structures for the joint development of data and information activities, such as the multiagency-sponsored Chemical Substances Information Network, is key to the achievement of this objective. The NLM is working with Federal, State and local agencies to develop the joint data collection and file building projects necessary to succeed.

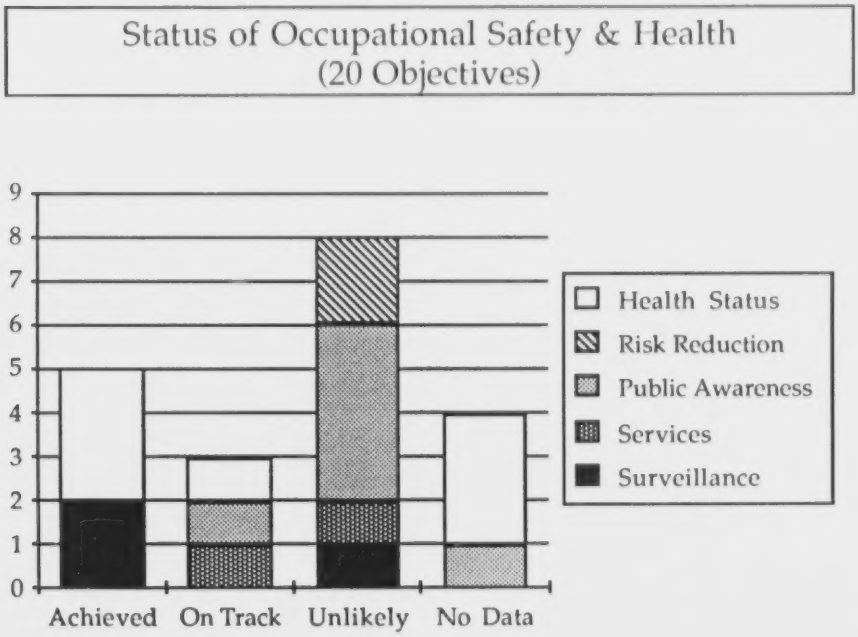
The Comprehensive Environmental Response, Compensation and Liability Act of 1980 calls for the establishment of an inventory containing literature, research, and studies on the health effects of toxic substances. As part of this initiative, the NLM created a new database the Hazardous Substances Data Bank, and made it available to the public on July 1, 1985, in an entirely new online search system called TOXNET. NLM also is working to expand and augment its other chemical and toxicological data bases.

While the section of this objective calling for the development of a national environmental data registry focuses on an issue of considerable importance, the full array of data systems needed to establish such a registry do not exist. Data for such a registry, where they do exist, are collected by disparate sources at Federal, State and local levels. Because there is no central focus guiding these data collection activities, the data are not standardized and are often not comparable. Even if the data systems necessary to create a national environmental data registry were available, a herculean effort would be required to identify, collect, catalogue, maintain and continually update the information on hazardous agents in air, food and water that would make up the registry.

Section G OCCUPATIONAL SAFETY AND HEALTH

The nearly 104 million men and women who makeup the work force in the United States sustain an estimated 10 million traumatic injuries on the job each year. In addition, about 400,000 workers become ill from exposure to hazardous substances in the workplace and about 100,000 die prematurely from these exposures. To help assure that no worker will suffer from a work-related disease, disability, or fatality, the National Institute for Occupational Safety and Health (NIOSH) focuses research on the following work-related diseases and injuries: (1) occupational lung disease, including lung cancer, (2) musculoskeletal injuries , (3) occupational cancers, (4) severe occupational traumatic injuries, (5) cardiovascular diseases, (6) disorders of reproduction, (7) neurotoxic disorders, (8) noise-induced loss of hearing, (9) dermatologic conditions, and (10) psychologic disorders.

The 20 objectives which address occupational safety and health allow measurement of significant progress in preventing work-related diseases, injuries, and fatalities. Four objectives that measure improvements in health status have either



been achieved already or are on track for achievement by 1990, though slight upswings in incidence of work-related injuries and fatalities between 1983 and 1984 give cause for concern that these advances will be maintained through the remainder of the decade. Meanwhile, there are still challenges to be faced in improving awareness levels and some measures of risk reduction set by objectives in this priority area.

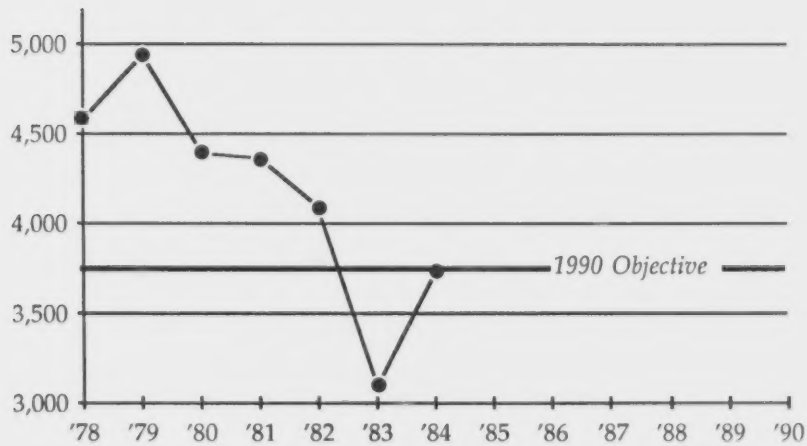
IMPROVEMENT OF HEALTH STATUS

Objective a. By 1990, workplace accident deaths for firms or employers with 11 or more employees should be reduced to less than 3,750 per year.

Baseline In 1978, there were 4,590 work-related fatalities for firms or employers with 11 or more employees.

Status In 1984, there were 3,740 work-related fatalities for firms or employers with 11 or more employees.

Workplace Accident Deaths
(Fatalities in Firms with 11 or More Employees)



Source: Bureau of Labor Statistics

Comment

This objective has already been met, but the upturn in the number of work-related fatalities between 1983 and 1984 suggests this achievement may not be permanent. The progress made thus far reflects the influence of such factors as demographic shifts, economic and political fluctuations, changes in the Bureau of Labor Statistics Annual Survey parameters and in reporting requirements, and the Occupational Safety and Health Administration's efforts to key enforcement trends to survey results.

Two types of action are necessary to reduce workplace accidental deaths. First, wider application of known controls is essential. Second, a major scientific effort to further knowledge and understanding of work-related fatalities must be developed.

The call for wider application of known controls is aimed at employers, union and trade representatives, and workers who are unaware of available controls or unwilling to implement them. Numerous researchers have documented the need for managers to take an active role in preventing injury to their workers. They point out that management commitment is an essential component of successful injury control programs. Providing vital safety program information to targeted audiences in industry, particularly small companies, is another important element of this activity.

A major scientific effort, the second category of action, requires a multifaceted approach. Occupational fatality surveillance systems need to be strengthened and a standard scheme for interpreting data base variances developed. Surveillance systems also should be modified, as necessary, to ensure the availability of an effective means for characterizing national experience, determining relative risk among industries, occupations, sexes, races, and other factors, and evaluating program impact. High risk industries, occupations, tasks, tools, and equipment need to be identified and effective countermeasures developed. High risk groups, activities and hardware should be studied to identify those factors which contribute most directly to increased risk. Finally, those methods for preventing occupational fatalities shown to be effective need to be widely implemented, along with the surveillance systems necessary to evaluate their impact.

Objective b.

By 1990, the number of work-related disabling injuries should be reduced to 8.3 cases per 100 full-time workers.

Baseline

In 1978, there were approximately 9.2 cases per 100 workers.

Status

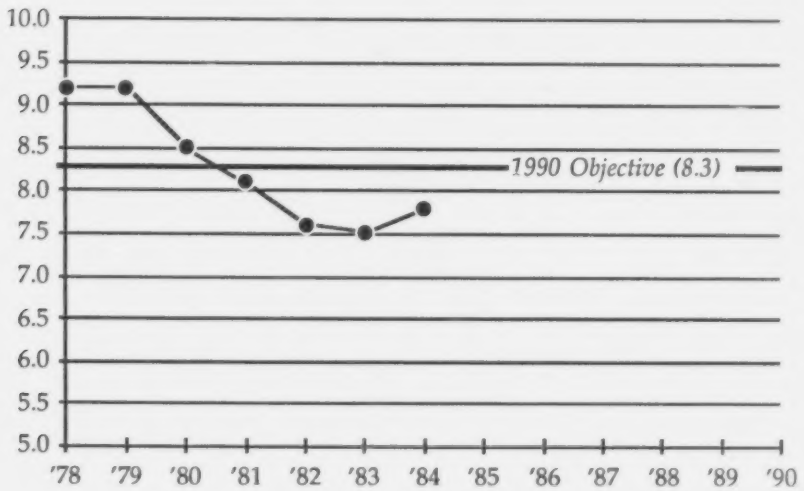
In 1984, there were approximately 7.8 cases per 100 full-time workers.

Comment

This objective has already been met, but the upturn between 1983 and 1984 in the number of work-related disabling injuries suggests this achievement may not be permanent. Progress thus far reflects the influence of such factors as demographic shifts, economic and political fluctuations, changes in the Bureau of Labor Statistics (BSL) Annual Survey parameters and in reporting requirements, and the Occupational Safety and Health Administration's effort to key enforcement trends to survey results.

Two types of action are necessary if work-related disabling injuries are to be permanently reduced. First, wider application of known controls is necessary. Second, a major scientific effort to further knowledge and understanding of work-related injuries must be developed.

Work Related Disabling Injuries
(Rate per 100 Full-time Workers)



Source: Bureau of Labor Statistics

The call for wider application of known controls is aimed at employers, union and trade representatives, and workers who are unaware of available controls or unwilling to implement them. Numerous researchers have documented the need for managers to take an active role in preventing injury to their workers. They point out that management commitment is an essential component of successful injury control programs. Providing vital safety program information to targeted audiences in industry, particularly small companies, is another important element of this activity.

A major scientific effort, the second category of action, requires a multifaceted approach. Occupational injury surveillance systems need to be strengthened and a standard system for interpreting data base variances developed. Differences between BLS estimates of work-related injuries (based on Annual Survey results) and estimates of the number of occupational injuries treated in U.S. hospital emergency rooms based on data from the National Electronic Injury Surveillance System (NEISS) illustrate the problem and underscore the need for a system to interpret data base variances. The BLS and NEISS data point to two different trends in work-related injury. The BLS data indicate a decline in work-related injuries at the same time NEISS data show a steady increase in the number of occupational injuries, from 3,123,100 injuries in 1981 to 3,826,190 in 1984. While the two data bases measure slightly different variables, a means to interpret variances is necessary; otherwise, the usefulness of occupational injury estimates will remain limited. Surveillance systems also should be modified, as necessary, to ensure the availability of an effective means for characterizing national experience, determining relative risk among industries, occupations, and sexes, as well as other factors, and evaluating program impact.

The scientific effort category also includes the identification of high risk industries, occupations, tasks, tools, and equipment and the development of effective countermeasures. In addition, high risk groups, activities and hardware should

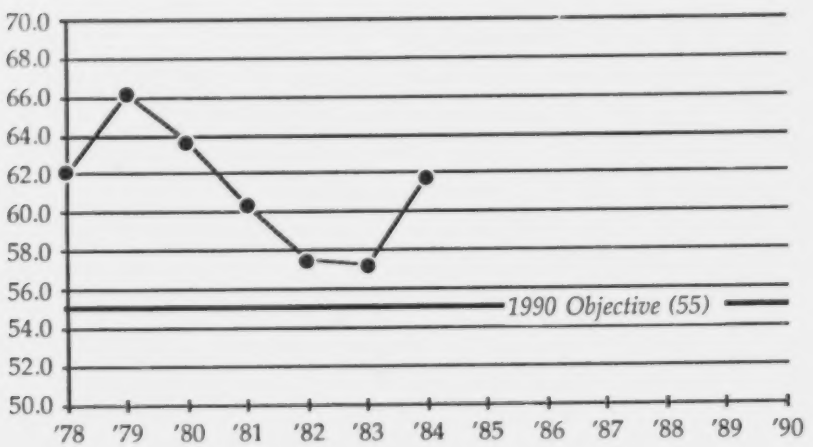
be studied to identify those factors which contribute most directly to increased risk. Finally, those methods for preventing occupational fatalities shown to be effective need to be implemented, along with a surveillance system to evaluate their impact.

Objective c. By 1990, lost workdays due to injuries should be reduced to 55 per 100 workers annually.

Baseline In 1978, approximately 62.1 days per 100 workers were lost.

Status In 1984, the number of workdays lost due to injuries was 61.8 per 100 workers.

Workdays Lost Due to Injuries
(Annual Lost Workdays per 100 Full-time Workers)



Source: Bureau of Labor Statistics

Comment The trend in lost workdays for the period 1979 through 1983 seemed to indicate achievement of this objective by 1990, but the upturn in workdays lost due to injury during 1984 casts some doubt that this objective will be reached. The upturn in this measure of occupational injury incidence in all likelihood reflects the relationship between the national occupational injury experience and changing economic conditions. In fact, a comparison of the unemployment rate and the lost workday rate over the period from 1974 through 1982 exhibits a clear inverse relationship. The lost workday rate is apparently influenced by a number of forces, among which the national prevention effort is only one. Progress made to date thus reflects the influence of multiple factors, such as demographic shifts, economic and political fluctuations, changes in the Bureau of Labor Statistics An-

nual Survey parameters and reporting requirements, as well as the Occupational Safety and Health Administration's efforts to key enforcement trends to survey results.

As with the two preceding objectives, two types of action are necessary to ensure achievement of this objective. First, wider application of known methods for reducing or eliminating workplace hazards is essential. Second, a major scientific effort to further knowledge and understanding of work-related injuries must be developed.

The call for broader application of known controls is aimed at employers, union and trade representatives, and workers who are unaware of available controls, or unwilling to implement them. Numerous researchers have documented the importance of managers taking an active role in preventing injury to their workers. A significant component of successful injury control programs is management commitment. Providing vital safety program information to target audiences in industry, particularly small companies, is another important element of this activity.

A major scientific effort, the second category of action, requires a multifaceted approach. Occupational injury surveillance systems need to be strengthened and a standard scheme for interpreting data base variances developed. Surveillance systems also should be modified, as necessary, to ensure the availability of an effective means for characterizing national experience and determining relative risk among industries and factors such as occupation, sex, and race. Trauma surveillance systems should also be modified to provide easy identification of targets for intervention as well as measurement of intervention effectiveness. Effective countermeasures need to be developed for those industries, occupations, tasks, tools, and equipment identified as carrying a high risk for injury. High risk groups, activities, and hardware should be studied to identify those factors which contribute most directly to increased risk. Finally, those methods for preventing occupational fatalities shown to be effective need to be widely implemented, along with the surveillance systems necessary to evaluate their impact. Changes in occupational injury incidence rates should be measured as a function of intervention if real progress is to be determined.

Objective d. By 1990, the incidence of compensable occupational dermatitis should be reduced to about 60,000 cases.

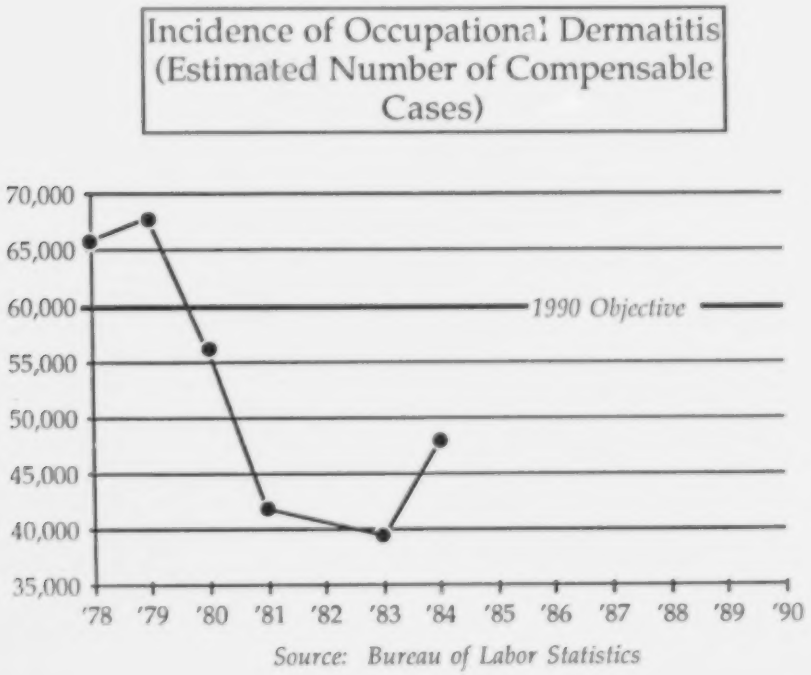
Baseline In 1978, there were approximately 65,900 cases involving compensation.

Status In 1984, there were approximately 48,000 cases of occupational skin diseases and disorders.

Comment This objective has already been met and far exceeded, but the upturn between 1983 and 1984 in the number of compensable occupational skin diseases and disorders does raise some concern that this achievement may not be permanent. Occupational skin diseases and disorders represent a significant and important component of the nation's occupational illness problem, but the past and current magnitude of the problem is difficult to determine. Occupational illnesses generally tend to be underreported, at least in part due to long exposure-effect latency periods and difficulties in establishing work-relatedness. Improved surveillance methods, wider application of known controls, and expanded research efforts

should ensure further and lasting reductions in the number of compensable occupational skin diseases and disorders that occur each year.

Broad application of intervention techniques, principally personal protective clothing, the use of less toxic chemicals, and information dissemination programs, should all be stressed. High risk groups, activities, and compounds should be studied to identify those factors which contribute most directly to the various occupational skin diseases and disorders. Methods for preventing occupational dermatitis, such as chemical protective clothing shown to be effective, need to be widely implemented, along with surveillance systems necessary to evaluate their impact. In addition, basic knowledge about the pathology of occupational skin diseases and disorders needs to be expanded, especially the long-term consequences of cutaneously absorbed toxins. Attention also needs to be given to the development of improved treatment methods. These and similar activities should ensure a substantial and permanent reduction in the incidence of occupational skin diseases and disorders by 1990.



Source: Bureau of Labor Statistics

Objective e. By 1990, among workers newly exposed after 1985, there should be virtually no new cases of four preventable occupational diseases— asbestosis, byssinosis, silicosis, and coal worker's pneumoconiosis.

Baseline In 1979, there were an estimated 5,000 cases of asbestosis; in 1977, an estimated 84,000 cases of byssinosis were expected in active workers; in 1979, an estimated 60,000 cases of silicosis were expected among active workers in mining, foundries, stone, clay and glass products, and abrasive blasting; in 1974, there were an estimated 19,400 cases of coal worker's pneumoconiosis.

Status

It is not possible to measure current status of this objective.

Comment

This objective cannot be achieved as stated. The only measurement which could practically estimate the potential for disease in 1990, among workers newly exposed after 1985, are environmental measurements. Asbestosis, byssinosis, nonacute silicosis, and coal worker's pneumoconiosis (CWP) are chronic diseases that usually take considerably longer than five years to develop. Therefore, the objective more appropriately should be worded to read: By 1990, dust levels will be low enough so that no new cases of four preventable occupational diseases—asbestosis, byssinosis, silicosis and complicated coal worker's pneumoconiosis—will develop.

In any rewording of the statement, the term "coal worker's pneumoconiosis" should be changed to reflect *complicated* coal worker's pneumoconiosis. *Simple* coal worker's pneumoconiosis does not cause impairment and is only an indicator of increased risk. It would be difficult, if not impossible, to obtain virtually no new cases of simple coal worker's pneumoconiosis.

Likewise, the use of the term "byssinosis" in any such objective is somewhat troubling. The present cotton dust standard will allow the development of some cases of byssinosis as determined by symptomatology and to a lesser degree by acute pulmonary function changes. It is only through medical monitoring and the removal of affected workers to less dusty areas that the standard attempts to preclude the development of chronic byssinosis among cotton workers.

A concern with this objective is that of establishing methods for determining attainment. At present, there is no uniform, consistent, and accurate reporting system for the chronic occupational diseases addressed in the objective, nor will there be by 1990. However, partial data are available for measuring progress from the Bureau of Labor Statistics (BLS) and the National Occupational Hazard Survey (NOHS).

Objective f.

By 1990, the prevalence of occupational noise-induced hearing loss should be reduced to 415,000 cases.

Baseline

In 1975, there were an estimated 462,000 cases of work-related hearing loss.

Status

There are no national data to measure, either directly or indirectly, progress toward attainment of this objective.

Comment

Since no data are available, it is not possible to evaluate progress toward achieving this objective. Work is currently underway to include a noise and hearing loss segment in the 1988 National Health Interview Survey.

Occupational noise-induced hearing loss is a condition which develops after prolonged and repeated exposure to high levels of noise. There is abundant epidemiologic and laboratory evidence that protracted noise exposure above 90 decibels (dBA) causes hearing loss in a portion of the exposed population. A recent NIOSH analysis estimates 13.3 percent of the American workforce, or 10.2 million workers, are exposed to 85 dBA or more. A worker who has been exposed to high levels of industrial noise, however, may not manifest a hearing loss for as many as ten years after initial exposure.

The insidious nature of occupational noise-induced hearing loss makes the attainment of any objective which includes previously exposed workers, such as this objective does, particularly difficult. A more realistic objective would be to focus on reducing the incidence of hearing loss among new workers. Any improvement in the work environment which would reduce noise-induced hearing loss in new workers would also benefit existing workers.

The Occupational Safety and Health Administration (OSHA) standard for occupational exposure to noise specifies a maximum permissible noise exposure level of 90 dBA for a duration of eight hours, with higher levels allowed for shorter durations. Limiting all workplace exposures to 90 dBA, with or without hearing protection, would result in approximately 29 percent of new, previously unexposed workers being at risk for work-related hearing loss.

Substantial reductions in the number of workers who suffer from a noise-induced hearing loss as a result of worksite exposure will come from three sources. Continued improvements in engineering controls should lower noise levels in many industrial operations. Major shifts in the technologies used within industries will yield lower noise levels, as noisy processes are replaced with quiet ones. Additionally, widespread availability of education and training programs for employees, informing them about the importance of personal hearing protection, will further progress toward this objective.

Prior to passage of the Hearing Conservation Amendment of 1982, no mechanism existed for monitoring work-related hearing loss. The Hearing Amendment mandated audiometric data collection on noise-exposed workers. OSHA now requires that audiometric tests be given to noise-exposed workers each year. The results of the tests are not reported to any single source, but are used by companies to monitor the hearing status of noise-exposed workers. These data, including information on annual shifts in status, if reported to a central source, would provide a mechanism for tracking the prevalence of occupational noise-induced hearing loss among the U.S. work force.

Objective g. By 1990, occupational heavy metal poisoning (lead, arsenic, zinc) should be virtually eliminated.

Baseline Baseline data were not available.

Status No data are available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Since no data are available, it is not possible to evaluate the likelihood this objective will be reached by 1990. A data base for measuring blood levels of the heavy metals arsenic and zinc would have to be developed for this purpose. Other national data bases, such as the National Health and Nutrition Evaluation Survey (NHANES), can be used to monitor blood lead levels in the general population.

The NHANES data base contains a broad range of health status information on the noninstitutionalized, civilian U.S. population based on medical histories, physical examinations, and laboratory tests, including measurements of lead concentrations in whole blood. While the NHANES is not designed to address the question of occupational heavy metal poisoning, workplace exposure to lead can be imputed through special analysis using NHANES data in conjunction with

data collected as part of the National Occupational Health Survey (NOHS) which identifies occupations where there is a potential for exposure to lead at the worksite.

A preliminary analysis comparing blood lead data collected from 1976 to 1980 as part of NHANES-II with NOHS data on worker exposure to chemical and physical agents indicates that men who are in positions where there is a potential for occupational exposure to lead have a significantly higher mean blood level than men without such potential occupational exposure. Worksite exposure to lead clearly has a significant impact on the blood lead levels of the U.S. adult population. Although blood lead levels among U.S. lead industry workers have declined in recent years, they are still higher than among lead workers in European countries.

As long as heavy metals exist in the workplace, the potential for heavy metal poisoning will continue to exist, even when the best control technology is used. Within reach, efforts to prevent occupational absorption of heavy metals must be strengthened. Such methods include: (1) replacing heavy metals with less toxic materials, (2) enclosing work processes that produce exposure, (3) adequately ventilating work areas, (4) altering work practices, (5) using personal protective equipment, and (6) modifying personal hygiene practices.

RISK REDUCTION

Objective h. By 1985, 50 percent of all firms with more than 500 employees should have an approved plan of hazard control for all new processes, new equipment, and new installations.

Baseline Baseline data were not available.

Status No data are available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Based on available information, it is unlikely this objective was met. There is no existing mechanism that requires the development of specific hazard control plans, nor is there a mechanism for review or approval of such plans.

The intent of this objective, to remove the potential for occupational injury by including plans for hazard prevention or control in the design stage of new facilities and processes, continues to be an appropriate focus for public and private sector efforts aimed at reducing risk for illness or injury within the worksite. There are several existing regulatory programs that could be used, with some modification, to further this or a similar objective. For example, Environmental Impact Statements now required for certain new facilities could be expanded to include an occupational health component. Premanufacturing notices for new chemicals or new uses of existing chemicals could be changed to include a full review and discussion of occupational exposure during both the production process and subsequent manufacturing applications.

The National Institute for Occupational Safety and Health (NIOSH) has conducted over 30 control technology assessment projects which document mechanisms for use in hazard control plans. In addition, NIOSH has carried out laboratory research and control demonstrations in industrial facilities to identify and evaluate prototype methods for hazard control. This information will be made available to the field as a published article, "Considerations in the Development of a Hazard Control Program."

NIOSH also has conducted two major national surveys as part of its hazard surveillance program. Data from the surveys, the National Occupational Hazard Survey (1972 to 1974) and the National Occupational Exposure Survey (1981 to 1983), are being analyzed to develop baseline information on businesses, their occupational health policies, worker exposure to particular hazards, and the degree to which businesses are implementing programs to reduce occupational health programs. Since the surveys were completed nearly a decade apart, they provide an opportunity to look at certain trends in patterns of exposure as well as the distribution of in-plant health and safety services and control technology. Trends in the number of health professionals within business and industry responsible for advising top level management about worksite hazard control can be described, as can trends in the number and type of worksite hazard control programs. Both items can be further analyzed by various industry characteristics, such as type and size.

Objective i. By 1990, all firms with more than 500 employees should have an approved plan of hazard control for all new processes, new equipment and new installations.

Baseline Baseline data were not available.

Status No data are available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Based on available information, it appears unlikely that this objective will be met. There is no existing mechanism that requires the development of specific hazard control plans, nor is there a mechanism for review or approval of such plans.

The intent of this objective, to remove the potential for occupational injury by including plans for hazard prevention or control in the design stage of new facilities and processes, continues to be an appropriate focus for public and private sector efforts aimed at reducing risk for illness or injury within the worksite. There are several existing regulatory programs that could be used, with some modification, to further this objective. For example, Environmental Impact Statements, now required for certain new facilities, could be expanded to include an occupational health component. Premanufacturing notices for new chemicals or new uses of existing chemicals could be changed to include a full review and discussion of occupational exposure during both the production process and subsequent manufacturing applications.

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If this objective is to be realized, a formal mechanism for overseeing the development and review of the hazard control plans will have to be developed. As part of this process the myriad factors involved in developing effective hazard control programs will have to be identified. Materials describing technical information on specific elements, such as recommended materials and prototype plans for particular industries and job classifications, also will have to be produced and widely disseminated. Finally, feasible, measurable, and effective indicators of progress toward this objective will have to be defined and a surveillance system put in place.

PUBLIC AND PROFESSIONAL AWARENESS

Objective j. By 1990, at least 25 percent of workers should be able, prior to employment, to state the nature of their occupational health and safety risks and their potential consequences, as well as be informed of changes in these risks while employed.

Baseline In 1979, an estimated five percent of workers were fully informed.

Status There are no national data available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Since no data are available, it is not possible to comment on the degree to which progress is being made toward achieving this objective. Nevertheless, numerous programs at the Federal, State, and local level support the intent of this objective and should serve to bring it within reach. The U.S. Department of Labor and many State and local regulatory agencies have implemented Hazard Communication or "Worker-Right-to-Know" legislation. The Occupational Safety and Health Administration estimates there are between 14 and 17 million covered workers employed in 19 industrial classification categories, as defined by the Standard Industrial Classification Manual. This does not include an additional five to eight million workers who are covered by State laws requiring that they

receive training by May 1986 concerning the hazards of the chemical substances with which they work. These workers represent 20 to 22 percent of the total worker population.

Workers are becoming increasingly concerned about occupational health hazards to which they may be exposed. Risks associated with asbestos and video display terminals, for example, are of high interest to the American public. To help respond to the growing number of inquiries it receives each year, the National Institute for Occupational Safety and Health (NIOSH) has prepared an annotated bibliography of the research and policy recommendations concerning the use of video display terminals. A second annotated bibliography is being developed on asbestos.

Efforts to inform the public about specific occupational safety and health risks, their cost to society, as well as methods available for eliminating or controlling specific occupational hazards, support and strengthen the potential for attaining this objective. NIOSH has developed and presented two training programs on occupational hazards to high school science and vocational teachers. Back in the classroon, these teachers will pass the principles learned in the training program on to their students, thereby providing the next generation of workers with a broader awareness of potential occupational hazards before their entry into the workforce. NIOSH also has developed a strategy for informing high school students of the occupational risks associated with industries in their local communities.

Objective k. By 1985, workers should be routinely informed of lifestyle behaviors and health factors that interact with factors in the work environment to increase risks of occupational illness and injuries.

Baseline Baseline data were not available.

Status Current data are not available.

Comment Although data were unavailable to confirm the status of this objective, it is evident that the objective was not achieved by 1985. The 1985 National Health Interview Survey reports that 35 percent of workers are aware of work environmental risks to their health and 41 percent are aware of exposure to accidents as part of their present jobs, but the intent of the objective is systems that ensure that workers are routinely informed.

Anecdotal information indicates that, over the last five years there has been a marked increase in the number of employers sponsoring health promotion programs as a way to help workers identify and change lifestyle behaviors posing risks to their health. These programs focus on lifestyle elements generally acknowledged to be etiologic factors in many chronic diseases and traumatic injuries: alcohol consumption, smoking, diet, physical fitness, and stress.

While the increasing number of employer-sponsored health promotion programs suggests an encouraging picture for this objective, there is little evidence that worksite health promotion efforts have included information on the connection between lifestyle factors, workplace hazards, and health status. At least three reasons can be offered to explain this observation. First, worksite health promotion efforts are typically the responsibility of health education and stress behav-

ioral interventions, while worksite hazard protection programs are the domain of industrial hygienists, safety engineers, or occupational physicians and emphasize environmental controls. These two groups have had little interaction over the years, thus making a merger of their respective programs more difficult. Second, potential for adverse health outcome due to interactions between lifestyle factors and workplace hazards is an issue primarily affecting blue collar workers. Worksite health promotion efforts have in the past often been directed to the white collar sector of the workforce. Third, the scientific knowledge base documenting the interrelationships between certain lifestyle factors, workplace hazards, and health outcomes is not fully developed.

Recognition of these difficulties has prompted the following remedial efforts:

- Sponsorship of workshops and programs to stimulate interaction between health education and occupational safety and health specialists;
- Dissemination of resource materials describing model worksite programs aimed at broadening worker knowledge of health risks due to both personal behaviors and job hazards, their interactions, and how such risks can be reduced;
- Evaluation of alternative methods for including occupational risk information on health risk appraisal instruments now used in worksite health promotion programs only to gauge the impact of various lifestyle factors on health status; and
- Development of a baseline measure for the number of workers in various industries and occupations who have smoking histories as a way to measure the impact of employer-sponsored smoking cessation programs.

Efforts such as these are expected to intensify and broaden over the next few years so that by 1990 workers will have ready access to information about those personal lifestyle factors which interact with factors within the work environment to increase risk of occupational illness or injury.

Objective 1. By 1985, all workers should receive routine notification in a timely manner of all health examinations or personal exposure measurements taken on work environments directly related to them.

Baseline Baseline data were not available.

Status Current data are not available.

Comment Though no data were available for tracking progress on this objective, the objective was not met by 1985. Routine notification of workers of the results of their medical tests and exposure measurements is not yet a reality in most work settings. The National Institute for Occupational Safety and Health (NIOSH) sets an example in this regard in informing workers of the results of their own studies and in conducting pilot work notification programs. NIOSH shares findings with employers, relevant unions or employee representatives where they exist, as well as with the Department of Labor and appropriate State agencies. In addition, for all studies initiated by a request for assistance from an employer or employee representative through NIOSH's health hazard evaluation program, reports are sent to the requester and posted at the worksite for 30 days or sent directly to the affected employees. Study findings are distributed through the scientific literature and special publications available to both the public and the media.

Achievement of this objective nationwide requires changes in the attitudes of employers, occupational health professionals, and others—changes which are likely to occur gradually over the next five years.

Objective m. By 1990, all managers of industrial firms should be fully informed about the importance of and methods for controlling human exposure to the important toxic agents in their work environments.

Baseline Baseline data were not available.

Status Current data are not available.

Comment Though data to track progress on this objective are not available, achievement appears possible. Significant effort has been exerted toward its achievement. The basic strategy has been to inform future managers through schools of business administration, curricula, and textbooks.

In 1982, a national project was launched to encourage this nation's schools of business to integrate the management of safety and health principles and concepts into their existing curricula. Lecture modules, case studies, a readings book, and video tapes have been developed and distributed to some 30 universities in this country. An estimated 20,000 students of business and management have been introduced to the principles and concepts of safety and health management in the workplace.

Objective n. By 1990, at least 70 percent of primary health care providers should routinely elicit occupational health exposures as part of patient history and should know how to interpret the information to patients in an understandable manner.

Baseline Baseline data were not available.

Status Current data are not available.

Comment Though no data are currently available, it appears unlikely that this objective will be met. Efforts are under way to educate primary care health providers about occupational health exposures as a component of medical history-taking, but achievement of 70 percent compliance by 1990 is considered to be more than can be accomplished.

A video tape for physicians on obtaining an occupational history is currently under development. The project would be jointly accomplished by the National Institute for Occupational Safety and Health (NIOSH) and the American Medical Association (AMA). The dissemination strategy provides for distribution through AMA's continuing education network, medical schools, residencies in family and community medicine, and the Association for Teachers of Preventive Medicine. The program would also be made available to the nursing profession through the American Association of Occupational Health Nurses and American Nurses Association.

Objective o. By 1990, at least 70 percent of all graduate engineers should be skilled in the design of plants and processes that incorporate occupational safety and health control technologies.

Baseline Baseline data were unavailable.

Status The National Institute for Occupational Safety and Health estimates that approximately one percent of the 1.9 million practicing engineers are skilled in the design of plants and processes that incorporate occupational safety and health technologies.

Comment Based on the current status, it appears unlikely that this objective will be met. Even though the percent is small, there are signs of progress. The latest data for June 1984 indicate that some 77,000 engineers graduated with undergraduate degrees, of whom an approximate five percent had received significant instruction in the occupational and health field. Curriculum development, instructional resource material development, and liaison between Federal occupational safety and health agencies and professional engineering societies are all being used to enhance progress toward achievement of this objective.

IMPROVEMENT OF SERVICES

Objective p. By 1990, generic standards and other forms of technology transfer should be established, where possible, for standardized employer attention to such major common problems as: chronic lung hazards, neurological hazards, carcinogenic hazards, mutagenic hazards, teratogenic hazards, and medical monitoring requirements.

Comments Based on progress to date, it appears likely that this objective will be met. The National Institute for Occupational Safety and Health (NIOSH) has developed a number of generic standards. However, generic standards for large disease groups such as cancer or for medical monitoring requirements have not been developed. Both of these are possible by 1990.

The following generic standards have been developed:

1. Recommended Standard for an Identification System for Occupationally Hazardous Materials.
2. Recommendations for Control of Occupational Safety and Health Hazards . . . Manufacture of Paint and Allied Coating Products.
3. Recommended Standard for Occupational Exposure to Hot Environments.
4. Recommendations for Control of Occupational Safety and Health Hazards . . . Foundries (draft).
5. Development of draft construction Safety Standards for Excavations.
6. Recommended Standard for Occupational Exposure to Emergency Egress from Elevated Workstations.

7. Criteria for a Recommended Standard . . . Working in Confined Spaces.
8. Recommended Standard for Occupational Exposure to Ultraviolet Radiation.

Objective q. By 1990, the number of health hazard evaluations being performed annually should increase tenfold; the number of industrywide studies being performed annually should increase threefold.

Baseline In 1979, the National Institute for Occupational Safety and Health (NIOSH) performed approximately 150 health hazard evaluations; 50 industrywide studies were performed.

Status In 1985, NIOSH carried out 552 health hazard evaluations (HHEs) and 82 industrywide studies.

Comment Based on progress to date, it is unlikely that this objective will be met. Health hazard evaluations and industrywide studies are vital to the development of new recommended health standards and for the basis of publications on medical screening and engineering controls. Numbers of evaluations and studies will depend on funding available and the priority within the agency given to them.

NIOSH's current goal is 400 to 600 health hazard evaluations (HHEs) and 20 to 30 industrywide studies per year. It would be desirable if the number of health hazard evaluations and industrywide studies conducted by NIOSH could be increased by the year 1990. Emphasis should be placed on studies of industries, agents, and occupations of particular concern, rather than the absolute number of studies done. The relevance of the investigation should be kept in mind and resources used accordingly.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective r. By 1985, an ongoing occupational health hazard/illness/ injury coding system, survey and surveillance capability should be developed, including identification of workplace hazards and related health effects, including cancer, coronary heart disease, and reproductive effects. This system should include adequate measurements of the severity of work-related disabling injuries.

Comments This objective was virtually achieved by 1985. The National Institute for Occupational Safety and Health (NIOSH) has accomplished most aspects of this objective through initiating surveillance data gathering efforts via Federal and State data collection mechanisms. However, all of these data sources are not producing large quantities of data, the data are not totally compatible with developing good trend and research priority information, and the resources necessary to improve them are not available.

This objective addresses a variety of issues which, though interrelated, are perhaps better considered individually. It refers, for example, to a coding system, survey capability and surveillance capability, all of which are different types of activities. In addition, it includes a variety of unrelated outcomes which require the development of different approaches in the categories of coding, surveys, and surveillance. It might be better to have separate objectives organized either by outcome or approach. An objective based on this 1985 objective could read: By 1990, using the surveillance systems initiated by 1985, injury, illness and mortality trends should be depicted for at least 10 to 15 hazards and 10 to 15 new priorities should be generated annually for possible epidemiologic or toxicologic research.

Objective s.

By 1985, at least one question about lifetime work history and known exposures to hazardous substances should be added to all appropriate existing health data reporting systems, e.g., cancer registries, hospital discharge abstracts and death certificates.

Comments

This objective was not achieved by 1985. However, this is an important practical measure that is now in effect in many States. Inclusion of occupational information in hospital records remains a high priority. A number of efforts have been undertaken to gather data on exposures to health hazards via death certificates. This objective is also being addressed in the 1986 National Mortality Follow-back Survey and the 1986 National Health Interview Survey (NHIS), both of which will contain questions about the subject's longest job.

Objective t.

By 1985, a program should be developed to: 1) follow up individual findings from health hazard and health evaluations, reports from unions and management and other existing surveillance sources of clinical and epidemiogical data; and 2) use the findings to determine the etiology, natural history, and mechanisms of suspected occupational disease and injury.

Comment

This objective, as it relates to injuries, has been achieved. The National Institute for Occupational Safety and Health (NIOSH) has developed a computerized tracking system for new information on emerging health problems. Most of the information in the system concerns specific chemicals. When such information is obtained from health hazard evaluations and reports from various unions or other surveillance data, it is entered into the tracking system. Also in operation is a NIOSH project on Occupational Sentinel Health Events. The results from this project might be useful in determining the etiology, natural history, and mechanism of occupational disease and injury.

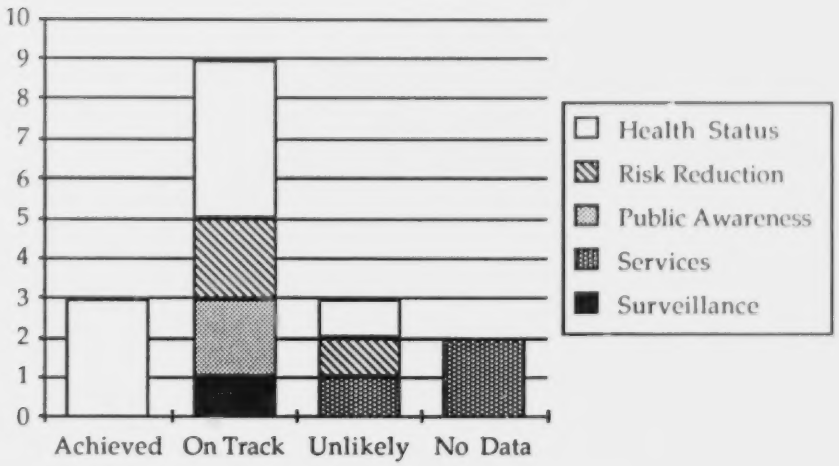
In response to the specific problem of occupational fatalities, the Fatal Accident Circumstances and Epidemiology (FACE) project has been developed and implemented. This project involves surveying injury sites and collecting circumstance-specific information for an epidemiologic case-comparison analysis of casual factors which increase workers' risk of fatal injury. FACE produces data suitable for detailed risk assessment. Data are collected on the basis of technical assistance requests. Methods are being devised to work more closely with State health departments in conducting occupational health hazards evaluations.

Section H ACCIDENT PREVENTION AND INJURY CONTROL

Injuries cause enormous losses of human life in America. In 1983, injuries accounted for over 143,000 deaths. Injuries rank fourth as a cause of death and first in potential years of life lost because they claim the lives of a disproportionate number of young people. Each year, an estimated 3.4 million years of potential life are lost due to injuries, compared to 1.8 million to cancer and 1.6 million to heart diseases.

Unintentional injuries are the leading causes of death in the first four decades of life. For children one to 14 years old, injuries are the most common cause of death, killing nearly four times more children than the next leading cause of death—cancer. For young people between the ages of 15 and 24, unintentional injuries account for more than 50 percent of all fatalities and claim about five times more lives than the next leading cause—homicide. the highest death rates for injuries occur among the elderly whose risk of fatal injury is substantially greater than adolescents and young adults. For persons 75 years and older, the injury death rate is more than two and one-half times that of teenagers and young adults.

Status of Accident Prevention & Injury Control
(17 Objectives)



Motor vehicles kill more people and lead to more disabling injuries than any other cause. Fall-related deaths rank second only to those related to motor vehicles. Burns and drownings also represent a significant share of injury-related deaths. However, injury-related deaths represent only the tip of the iceberg in defining the injury problem. In 1981, there were nearly 75 million nonfatal, unintentional injuries accounting for over 490 million days of restricted activity. Each year, injuries account for nearly 100 million physician contacts; 25 percent of hospital emergency room visits are for the treatment of injuries; and nearly 3.5 million hospitalizations are for injuries.

In addition to death and disability, injuries cause substantial economic losses. The direct medical expenses and indirect productivity loses are conservatively estimated as $75-100 billion annually. Injuries are expensive to this nation, yet even modest expenditures for prevention can result in substantial savings of lives, avoidance of disability, and greatly reduced medical care costs.

Since injury prevention was identified as one of 15 priority health areas to be addressed by the 1990 Objectives, public health authorities have increasingly identified injury prevention as a new public health focus and have described opportunities for effective intervention. Many other decision-makers in both the public and private sector are assigning a high priority to injury prevention efforts.

Although the process of change has begun as demonstrated by the number of objectives already achieved or on track for achievement by 1990, it is important to realize that programmatic efforts in injury prevention have not yet matched the burden of morbidity, mortality, and cost on the public. Barriers that retarded the development of the injury prevention field need to be removed if the application of the same scientific, epidemiologic principles and approaches that are applied to other diseases are to be fully applied to injuries. This requires an intense, coordinated effort and the involvement of Federal, State and local health agencies; academic institutions; and medical societies, voluntary organizations, and others with strong interest and responsibility in this area.

IMPROVEMENT OF HEALTH STATUS

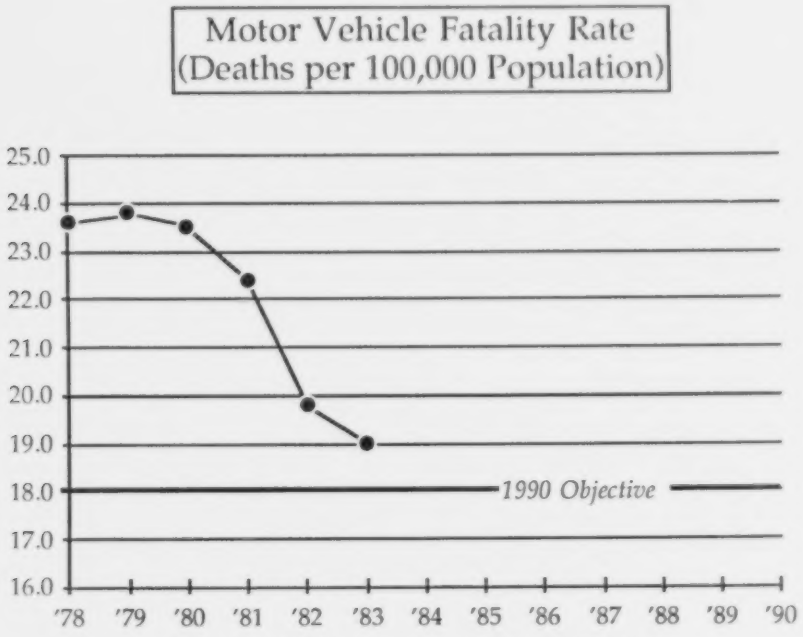
Objective a. By 1990, the motor vehicle fatality rate should be reduced to no greater than 18 per 100,000 population.

Baseline The 1978 rate was 23.6 per 100,000.

Status The 1983 rate was 19.0 per 100,000.

Comment Based on progress to date, it appears that this objective will be met. Motor vehicle fatalities still account for about half of all unintentional injury deaths and are the leading cause of work-related injury deaths. Work related crashes account for seven percent of all motor vehicle fatalities; pedestrian fatalities for another 18 percent. Although there were fewer motor vehicle fatalities in 1974 and 1975 (21.5 per 100,000) following the gasoline shortage and adoption of the 55 miles per

hour speed limit, this trend did not continue, but reverted to pre-1974 levels during the period 1976-1980 (24 per 100,000). The 1983 death rate per 100 million miles travelled dropped nine percent to the lowest rate on record (2.58) after a fairly stable rate ranging from 3.25-3.24 during 1976-1980.



Source: National Center for Health Statistics

The significant decrease in motor vehicle fatalities is attributable to many factors, including improved motor vehicle design, improved road conditions, improved medical care for crash victims, increased public awareness of the risk of drunk driving, and increased use of safety belts and child safety seats. With respect to safety belts and safety seats, all 50 States and the District of Columbia now require child safety seat use; 16 States have passed mandatory seat belt laws. Driver seat belt use has increased to 19.4 percent in the first quarter of 1985 from 11 percent in 1978. Early feedback from New York, the first State to enact a mandatory seat belt law, shows that motor vehicle fatalities for January-May, 1985 are 33 percent lower than the previous five-year average for those months (1980-1984).

Alcohol use and drunk driving continue to pose a serious problem, with more than one quarter of a million persons having been killed in an alcohol-related crash over the past decade. It is possible to expand the campaign against drunk driving to include interventions directed solely at alcohol use, such as increasing taxes and reducing availability, thus substantially influencing the rate of progress for 1990 and beyond.

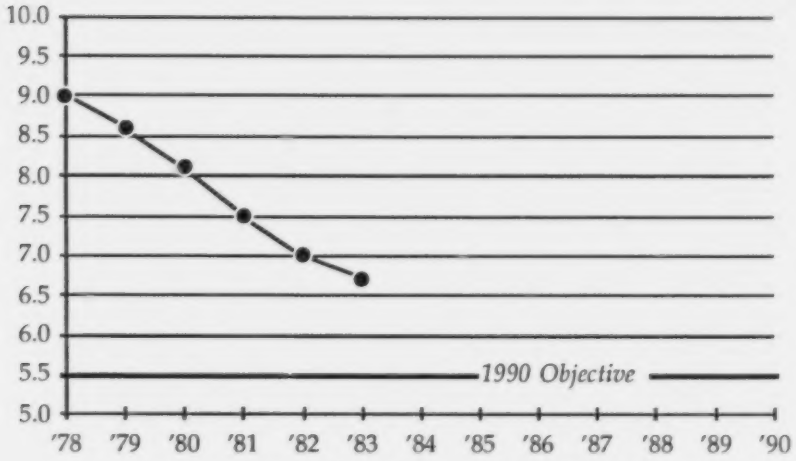
Attention should also continue to be placed on the availability of emergency medical services which are positively correlated with lower mortality rates.

Objective b. By 1990, the motor vehicle fatality rate for children under 15 should be reduced to no greater than 5.5 per 100,000 children.

Baseline The 1978 rate was 9.0 per 100,000.

Status The 1983 rate was 6.7 per 100,000.

Child Motor Vehicle Fatality Rate
(Deaths per 100,000 Children Under 15 Years)



Source: National Center for Health Statistics

Comment Based on progress to date, it appears that this objective will be met. Among children ages one through 14, motor vehicle collisions are a major cause of injury and disability, and the cause of 20 percent of all deaths. After the first year of life, motor vehicle fatalities are the leading cause of death.

The reasons for the steady decrease in deaths from motor vehicle injury in children under 15 have been attributed to the implementation of child passenger safety laws and enforcement, improved vehicle design and safety seats to reduce injury and death, and public awareness and advocacy. Child safety seats, when they are used properly, are up to 60 percent effective in reducing fatalities, and up to 80 percent effective in reducing injury.

All 50 States and the District of Columbia have enacted child restraint use laws. Observed usage rates continued to increase dramatically to 51.7 percent in the first quarter of 1985 from 15.2 percent in 1979. The rates are 65.5 percent for infants (under one year of age) and 50.4 percent for toddlers (one to four years). The major impediment to progress is the incidence of child safety seat misuse. More than half of the safety seats are either used improperly or inconsistently.

The objective should be achieved by 1990, but achievement will require parental instruction and guidance to ensure correct use of child safety seats and training

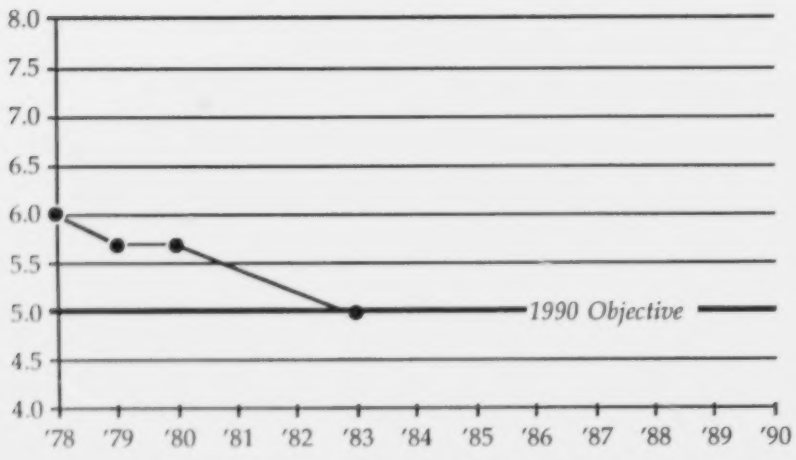
for providers, volunteers, and child safety seat loaner program staff. Another element key to achievement of the objective is standardization of State child-passenger safety law provisions and effective enforcement of such laws. This process should be facilitated by current State efforts to establish evaluation systems to measure the effectivensss of programs and to increase their efficiency.

Objective c. By 1990, the home injury fatality rate for children under 15 years of age should be no greater than 5.0 per 100,000 children.

Baseline The 1978 rate was 6.0 per 100,000.

Status The 1983 rate was 5.0 per 100,000.

Children's Home Injury Fatality Rate (Deaths per 100,000 Children Under 15 Years)



Source: National Center for Health Statistics

Comment The objective has already been achieved. For nearly 50 years, there has been a steady decline in the home injury death rate for children under 15 years of age. For the same period, there has also been a 50 percent decrease in the number of deaths. Substantial progress has been made in recent years in some particular types of childhood injuries: home fire deaths and deaths due to mechanical suffocation have been cut by 26 percent from 1978 to 1983. Deaths due to suffocation by ingestion have decreased 59 percent during this period with almost all of the decrease occurring in the birth to four year age group.

Reasons for progress in the home injury fatality rate overall are tied largely to an improved economy and technological advances, including: the installation of

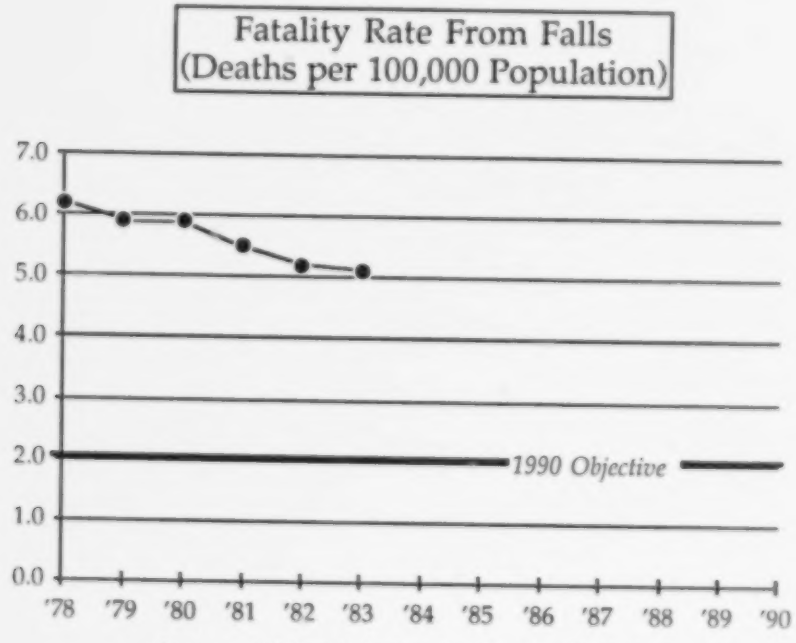
smoke detectors; improved housing design to inhibit the spread of fires and provide adequate escape routes; the use of flame resistant materials in furniture and mattresses; better packaging of poisonous household products; and better enforcement of housing codes. One possible explanation for the decrease in ingestion deaths is the implementation of, and publicity surrounding, toy safety standards. Additional gains could be made by the use of new and safer products such as self-extinguishing cigarettes.

Since this objective was achieved in 1983, it could appropriately be revised downward to 4.0 per 100,000 by 1990. This objective is appropriate with the caveat that each composite part of the rate (including falls, fires and burns, poisonings, suffocations, firearms, and drownings) continue to be evaluated separately to determine its contribution to the overall rate.

Objective d. By 1990, the death rate from falls should be reduced to no more than two per 100,000 population.

Baseline In 1978, the death rate from falls was 6.2 per 100,000 population.

Status In 1983, the death rate from falls was 5.1 per 100,000 population.



Source: National Center for Health Statistics

Comment Based on progress to date, it appears unlikely this objective will be met. While the trend from fall fatalities has been and continues to be downward, the rate of decline is insufficient to achieve the target of two deaths per 100,000 population

by 1990. Continuation through the end of the decade of 11 percent annual decline in fatalities due to falls would result in a fall fatality rate insufficient to reach the 1990 target.

It is important to note that this objective is based on data unadjusted for characteristics of the population at risk, such as age, sex, and race. The relative contribution each population subgroup makes to the overall fall fatality rate varies widely. A better understanding of the population at greatest risk for death due to falls as well as the effectiveness of various intervention strategies is necessary before change in the rate of progress toward achieving this objective can occur. Population data must be separately analyzed and efforts targeted toward those at greatest risk if we are to substantially alter the number of falls that occur each year or the number of deaths among fall victims.

The shift in the age distribution of the U.S. population is another factor influencing our ability to achieve this objective. The population group at highest risk for fatal falls, those persons 75 years of age and older, is becoming an ever increasing proportion of the population. Numerous host, environmental, and agent risk factors contribute to the high rate of fatal and nonfatal falls in this age group. Until we are better able to prevent falls in this age group, the fall fatality rate for the entire population is unlikely to decrease significantly, no matter what else we do.

A unified effort among national, State and local public health authorities and community groups to increase awareness of injuries as a public health problem is needed if this objective is to be achieved. Such an effort should include the development of community-based injury control programs that provide direct interventions, effective code enforcement, and consumer information on the most effective and efficient methods to prevent falls and injuries due to falls.

Objective e. By 1990, the death rate from drowning should be reduced to no more than 1.5 per 100,000 persons.

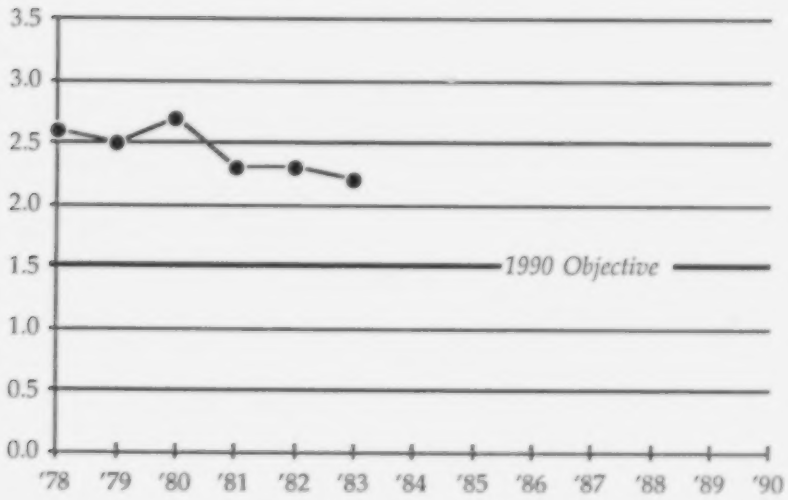
Baseline In 1978, the death rate from drowning was 2.6 per 100,000. (Baseline data were revised based on final figures.)

Status In 1983, the death rate from drowning was 2.2 per 100,000.

Comment Based on progress to date, it appears likely that this objective will be met if a unified national effort to address this problem can be mounted. It is clear that, if past trends for the number of fatalities reported each year due to drowning per 100,000 population were to continue through the end of the decade, the target set for 1990 would not be attained.

Evidence from other sectors suggests that progress in controlling drowning may be greater than the data imply, however. The marked increase during recent years in home swimming pools, spas, and recreational water craft, for example, has substantially increased the exposure to the risk of drowning for some segments of the population. The modest declines in the fatality rate for deaths due to drowning since 1978 may actually represent substantial progress in controlling drowning given the concurrent increase in the exposure of the U.S. population to the risk of drowning.

Death Rates From Drownings
(Deaths Per 100,000 Population)



Source: National Center for Health Statistics

Many complex factors, both human and environmental, are associated with drowning. Alcohol consumption, for example, is associated with about 50 percent of young adult and adult drownings. Drowning is the third leading cause of unintentional injury deaths, and the rate for death due to drowning is highest in children four years of age and under and persons ages 15 to 24. About 16.7 percent of drownings involve boats, primarily recreational craft, and about 10 percent occur in and around the home.

Achievement of this objective will require the use of control strategies and the application of safety technology. Comprehensive community-based strategies to reduce the number of lives lost each year due to drowning and to achieve this objective should include public education programs, health provider involvement, legislative intervention where necessary, effective enforcement of laws and regulation, and close monitoring of progress.

Objective f. By 1990, the number of tap water scald injuries requiring hospital care should be reduced to no more than 2,000 per year.

Baseline In 1978, the estimate was 4,000 per year. An improved estimate in 1979 was 5,400 per year.

Status In 1983, the estimate was 3,133 per year. [New York State Department of Public Health estimated 4,000 in 1978. The Consumer Product Safety Commission (CPSC) estimate of 3,133 in 1983 is based upon a relatively small number of injuries and is therefore subject to some sampling variability. These estimates have a

relative standard error of .22. However, CPSC surveillance data have been determined to be the best source for tracking progress in this area.]

Comment

Based on progress to date, it appears that this objective will be met by 1990. The public has become increasingly aware that tap water scalds can be reduced by lowering water heater thermostat settings to 120 Farenheit. Surveys indicate that an increasing number of health care providers are stressing injury prevention to their patients. These surveys also indicate that consumers can be motivated to lower thermostat settings through outreach and educational programs. Focusing messages on both safety and energy conservation has produced the greatest response.

Those persons most extensively affected by tap water scalding are children under five years old. Adults over 65 years of age, infirm, and mentally incapacitated persons also are at high risk because of reduced ability to escape. For the elderly, in particular, reduced skin sensitivity represents another factor that increases the risk for injury.

To achieve the objective requires increased community awareness of the tap water scald problem and information on what needs to be done to resolve it. This requires a unified national, State, and local effort; a heightened role for the provider community; and development of comprehensive injury control programs that include a focus on the tap water scald problem. Legislative activities appropriately could be directed to establishment of maximum factory presettings of water heater thermostats and warning labels that include a table of temperatures corresponding to length of time to scald.

Objective g.

By 1990, residential fire deaths should be reduced to no more than 4,500 per year.

Baseline

In 1978, there were 5,400 residential fire deaths.

Status

In 1983, there were 4,512 residential fire deaths.

Comment

This objective was essentially reached in 1983 according to the most recent data from the National Center for Health Statistics. The National Fire Protection Association reported a 13 percent decrease in the number of home fire deaths to 4,075 in 1984 from 4,670 in 1983. Using rates instead of total number of fatalities, the baseline in 1978 was 2.4 per 100,000. The 1983 rate was 1.9 per 100,000, and the target rate is 1.5 per 100,000.

Housefires account for about 75 percent of all deaths from fires (typically burn and smoke inhalation deaths). Fatality rates are the highest in young children and the elderly both because of their difficulty in escaping from housefires and reduced likelihood of survival after receiving fire-related injuries.

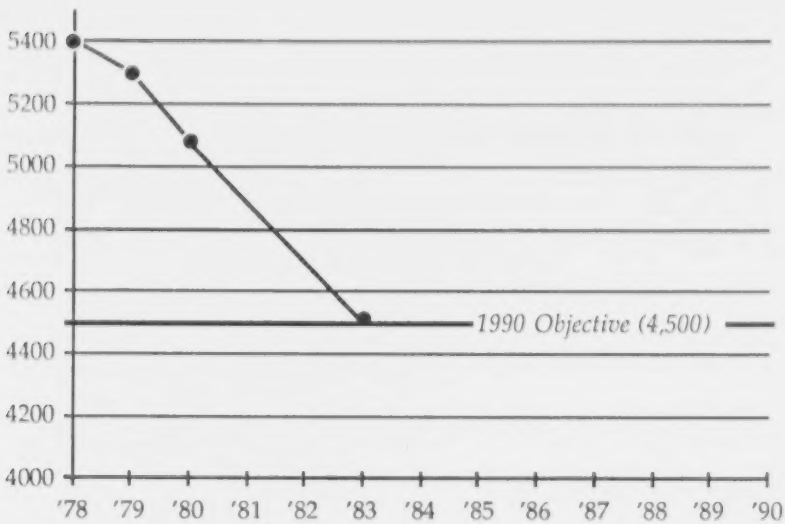
Although the numbers and rates of residential fire-related deaths have declined over recent years, progress in this area has lagged far behind the decline of fire and burn deaths in other settings. These rates have steadily and steeply declined since the 1930's.

Recent advances in residential fire safety, such as more widespread use of fire resistant building materials, increasing use of smoke detectors, improved fire and emergency medical service response, and improved burn treatment, continue to be at least partially offset by factors that increase risk, particularly cigarette smok-

ing, alcohol use, and lack of smoke detectors in the dwellings of the poor. In a 1982 survey, 67 percent of U.S. dwellings had at least one smoke detector; in a 1983 survey in a low-income neighborhood in a major city, less than 10 percent of the dwellings had smoke detectors.

Continued progress toward the achievement of the objective to reduce residential fire deaths will require a unified national, State, and local effort involving all sectors of society to ensure the broader application of currently available prevention measures. These include efforts that lead to the safe handling and storage of flammable materials; the installation of smoke detectors and sprinkler systems, particularly in high-risk older buildings occupied by the poor; the production of self-extinguishing cigarettes; wider use of flame resistant fabrics in furniture and mattresses; and development and enforcement of building codes, including those that mandate minimum standards for use of flame retardant construction materials.

Fatalities From Residential Fires



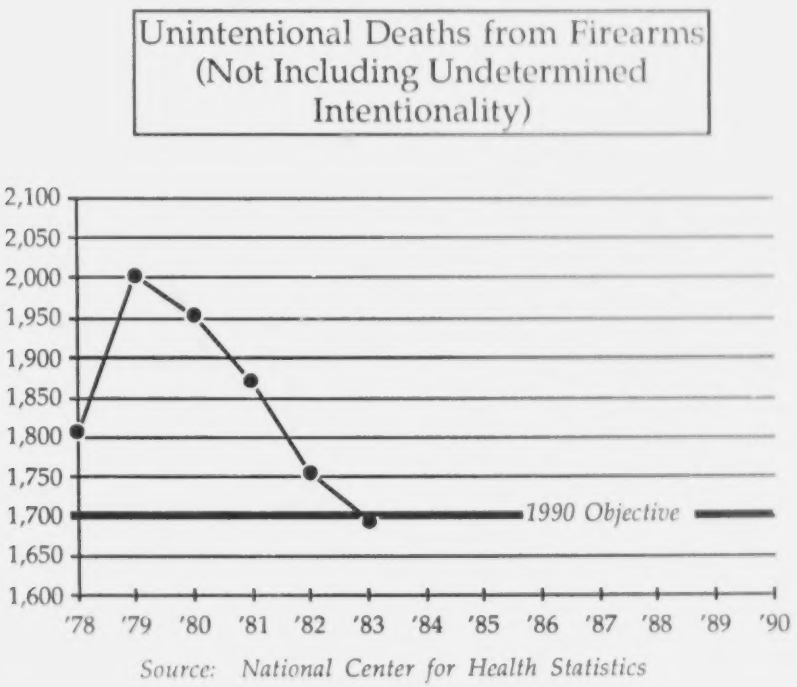
Source: National Center for Health Statistics

Since this objective was essentially reached in 1983 and the trend continued downward in 1984, it is reasonable to consider targeting a 1990 fatality rate from residential fires of 1.5 per 100,000 population.

Objective h. By 1990, the number of unintentional deaths from firearms should be held to no more than 1,700.

Baseline In 1978, the number of unintentional deaths from firearms was 1,800.

Status In 1983, the number of of unintentional deaths from firearms was 1,690.



Source: National Center for Health Statistics

Comment Based on progress to date, this objective has already been met. Unintentional firearm fatalities represent only six percent of all firearm fatalities, yet they are the seventh leading cause of death from unintentional injuries. The death rate for unintentional firearm injuries is highest in those aged 15 to 19 years, and the death rate in rural areas is seven times that in large cities. About half of all unintentional firearm deaths occur in the home and 26 percent in occupational settings. Deaths from unintentional firearm injuries take the highest toll on Native Americans, followed by Blacks, Whites, and Asian Americans in that order.

More information is needed about the causes and circumstances surrounding unintentional firearm fatalities before effective prevention measures can be developed and implemented. If such measures were to be developed, a unified national, State, and local effort could be mounted to maintain the number of accidental deaths from firearms below the target level by 1990.

RISK REDUCTION

Objective i. By 1990, the proportion of automobiles containing automatic restraint protection should be greater than 75 percent.

Baseline In 1979, the proportion of automobiles with automatic restraint protection was one percent.

Comment Based on progress to date, it appears unlikely that this objective will be met. This objective was based on the assumption that during the 1980's automatic restraint systems would be installed in most new-model automobiles either as the result of public pressure or the passage of legislation requiring such systems. This change in manufacturing practices has not come to pass, nor is it likely to happen during the balance of this decade.

The Department of Transportation (DOT) ruled in 1984 that automobile manufacturers will be required to equip all new model automobiles with passive restraint systems if less than two-thirds of the U.S. population is covered by mandatory seat-belt-use laws meeting DOT requirements by the year 1989. As of December 1985, 16 States and the District of Columbia had passed mandatory seat-belt-use laws. Other States are actively considering such legislation.

Since it is too early to determine whether the mandatory seat-belt-use law target will be reached by 1989, DOT is also implementing its requirement calling for a certain percentage of new cars manufactured each year to be equipped with automatic restraints. Under this requirement, ten percent of the 1987 model year cars (those manufactured after September 1, 1986) must come equipped with automatic restraint systems. The levels for subsequent years are as follows: 25 percent of 1988 model year cars, 40 percent of 1989 model year cars, and 100 percent of 1990 model year cars. If the DOT target for mandatory seat-belt-use laws is reached, manufacturers may stop equipping new model cars with automatic restraint systems.

Even if every car manufactured between 1986 and 1990 came equipped with automatic restraints, only 50 percent of the on-road fleet would be so equipped by 1990. Seat-belt-use laws, properly enforced, would provide safety benefits more quickly and at less expense than other alternatives. Even if all States were to pass mandatory seat-belt-use laws and some percentage of new model cars were to be equipped with automatic systems, the Department of Transportation estimates that the percentage of the population using automobile passenger restraints would be no more than 70 percent through the end of this century. This estimate is based on the results of recent research suggesting that there is a group of hard-core nonusers in this country totalling 20 to 30 percent of the population.

The intent of this objective is to ensure that riders in motor vehicles are properly protected in the event of crashes. Improved motor vehicle crashworthiness legislation that motivates riders to use seat belts and child restraints and the installation of automatic restraints in motor vehicles are key variables in increasing rider protection.

Tracking systems and procedures that can accurately measure both restraint use and the percent of motor vehicles equipped with automatic restraint systems need to be developed. These data should be collected in a manner that would allow children under five years of age and those between five and 15 to be separated from other age groups, especially older persons. Tracking data in these categories would measure the effect of child seat restraint device laws and highlight progress toward reducing the burden of injury, disability, and death among younger age groups.

Objective j. By 1990, all birthing centers, physicians, and hospitals should ensure that at least 50 percent of newborns return home in certified passenger carriers.

Baseline Baseline data were not available.

Status No national data are available on infants leaving hospitals in safety seats. An ongoing National Highway Traffic Safety Administration (NHTSA) survey found 60.4 percent of infants observed to be in safety seats; only 41 percent of these safety seats were properly secured.

Comment Based on progress to date and the existence of child safety restraint legislation in all States plus the District of Columbia, it is likely that this objective will be met. It is possible that the objective has been met already. In spite of the universal legal mandate, however, it appears that a substantial portion of child safety seat users is not providing appropriate infant support and a majority is not providing correct infant safety restraint.

The legal mandates are supported by programs of business, professional and community organizations to inform the public, encourage proper installation of safety seats and subsidize their use. A number of companies in the infant products industry produce literature for public distribution detailing the proper use and common misuse of infant passenger seats. The American Academy of Pediatrics has expanded its "First Ride a Safe Ride" program to "Every Ride a Safe Ride" and has included safety restraint information as part of its The Injury Prevention Program (TIPP) patient education materials distributed to all pediatricians and health departments across the country. Child safety seat loaner programs are in existence in every State in the country. The programs are usually administered by community voluntary and service organizations or hospital staffs. For example, in one State over 70 percent of hospitals have loaner programs, with over 15,000 seats available for loan. Combined with an educational component, these programs resulted in a tripling of usage in hospitals surveyed.

Simplification of safety seat design is in process. With increased ease of use, presumably the problems of incorrect installation will be reduced. Including a safety seat as part of the perinatal insurance care package and including education on use of safety seats in the prenatal period will help establish a favorable environment for usage once the baby is born. Continued educational campaigns aimed at both adults and children will have some impact on the situation. Adaptation of child safety seat usage as a requirement for hospital discharge will further reinforce the environment.

Objective k. By 1990, at least 110 million functional smoke alarm systems should be installed in residential units.

Baseline In 1979, there were approximately 30 million smoke alarm systems in residential units. This is equivalent to approximately 38 percent of U.S. households with properly placed and functioning systems.

Status Progress toward this objective will be tracked through the National Health Interview Survey (HIS) starting in 1985. Provisional data from the Health Promotion and Disease Prevention Supplement to the 1985 HIS, based on information collected during the first three months of the year, indicate that 59 percent of the population is protected by working smoke detector systems.

Data from the National Fire Protection Agency show the growth in the percent of residential units with properly placed and functioning smoke detectors to be from approximately 20 percent in 1977 to approximately 65 percent in 1982.

Comment

Based on progress to date, it appears that this objective will be met. Early warning fire detection systems have emerged as the most practical method of reducing injuries and preventing property loss. The proportion of households with smoke detectors rose from one out of five in 1977 to two out of three in 1982. During this same time period, the number of residential fire deaths nationwide dropped from 5,000 to 4,562.

Experts attribute the rapid increase in the use of residential smoke detectors to a marked reduction in their cost, intensive marketing campaigns, fire prevention programs sponsored by local fire departments, building code modifications, and legislation requiring smoke detectors to be installed in residential units. Eighteen States had passed residential smoke detector legislation as of 1977, primarily aimed at new construction and multifamily dwellings. The number of States requiring smoke detectors had grown to 29 by 1983 and, of these, 22 required existing housing to be retrofitted with smoke detectors.

Attainment of this objective will require continued national, State and local efforts to reduce injuries and prevent property loss due to residential fires through the use of smoke detection systems. One area that needs special attention is the availability of functioning smoke detectors in low-income housing. Despite the rapid increase in the use of smoke detectors nationwide, a recent study suggests smoke detectors are absent, poorly placed, or nonfunctional in the majority of housing units inhabited by those at or below the poverty line.

PUBLIC AND PROFESSIONAL AWARENESS

Objective 1.

By 1990, the proportion of parents of children under age 10 who can identify appropriate measures to address the three major risks to their children (motor vehicle injuries, burns, and poisonings) should be greater than 80 percent.

Baseline

Baseline data were not available.

Status

This objective will be tracked through the Health Interview Survey (HIS) beginning with 1985. Provisional data from the 1985 Health Promotion and Disease Prevention Supplement to the HIS indicate that 91 percent of persons in families with children under 10 years of age have heard about poison control centers and 98 percent of persons in families with children under five years of age have heard about child safety seats, sometimes called care safety seats, which are designed to carry children while they are riding in a car. The HIS data also indicate that 35 percent of persons in households know what the hot water temperature is in their homes, but 63 percent do not know the temperature above which hot water will cause scald injuries.

Comment

Progress to date, based on analysis of initial data from the 1985 Health Interview Survey, indicates that this objective will be achieved by 1990. Significant progress toward the attainment of this objective is expected as the result of ongoing public and private sector efforts to develop programs aimed at reducing childhood injuries. For example, the American Academy of Pediatrics and the Public Health Service have joined forces to provide health care providers who see children regularly with information packets that help them identify and counsel families whose children are at greatest risk of injury.

The rapidly expanding commitment of national, State, and local organizations to the control of childhood injury is expected to provide the impetus necessary to achieve this objective. Public and private sector efforts to make injury control education programs widely available should serve to heighten public awareness of childhood injury risk factors and the measures that can be taken to reduce such risks and thereby ensure attainment of this objective.

Objective m.

By 1990, virtually all primary health care providers should advise patients about the importance of safety belts and should include instruction about the use of child restraints to prevent motor vehicle related injuries as part of their routine interaction with parents.

Baseline

Baseline data were not available.

Status

This objective will be tracked through the Health Interview Survey (HIS) beginning with 1985. Provisional data from the 1985 Health Promotion and Disease Prevention Supplement to the HIS indicate that 47 percent of families with children under five years of age have received advice from a doctor or other health professional about the importance of using car safety seats for their children. There are no national data available to measure, either directly or indirectly, progress toward attainment of the second element in this objective.

Comment

Based on the apparent increase in the commitment of the health care provider community to the prevention of injuries, it appears likely that this objective will be met by 1990. The increasing involvement of the health provider community in efforts to reduce the toll injuries take each year on the general health and well-being of the American people is evidenced in a wide range of educational and legislative activities. Safety belts and child restraints are now available for virtually all passenger car occupants. All 50 State legislatures have mandated child safety seat usage and at least 16 States have passed mandatory seat belt laws. In addition to supporting legislative initiatives, health care providers have developed informational materials to heighten public awareness of the problems as well as educational materials for use in practice settings that describe individualized approaches to injury prevention, especially the prevention of motor vehicle-related injuries. Health care providers are also actively involved in the development of educational materials for use directly with children to increase their seatbelt use now and as a way to establish behavior patterns that will carry through the adult years.

If this objective is to be reached, a heightened awareness is needed within the health provider community of the integral role they play in shaping public opinion as well as motivating individuals to adopt behaviors that reduce the risk of injury. Provider involvement in the development and implementation of com-

prehensive injury prevention programs at the State and local level is an essential element in this process.

IMPROVEMENT OF SERVICES

Objective n. By 1990, at least 75 percent of communities with a population over 10,000 should have a capability for ambulance response and transport within 10 minutes of a call.

Baseline Baseline data were not available.

Status There are no national data available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment Because no tracking system has been implemented, it is impossible to predict whether this objective will be reached by 1990. The importance of rapid response and transport of trauma patients is, however well-known. Rapid prehospital response and delivery of trauma patients to definitive care, even within one hour of injury, has a significant impact on mortality. Implementation of the Emergency Medical Systems Act of 1973, along with the amendments to the Act passed in 1976 and 1979, helped to develop regional systems of emergency medical care. As a first step toward decreasing death and disability as a result of medical emergencies, the Division of Emergency Medical Services, within the then Health Resources Administration (PHS), mapped out 303 emergency medical service (EMS) regions throughout the United States. Federal seed monies and guidance were made available to the regions as a way to help them establish emergency response networks. Responsibility for maintaining the EMS system was transferred to the States in 1982 when the program was folded into the Preventive Health and Health Service Block Grant.

Concern about the adequacy and availability of emergency medical services tailored to the special needs of children requiring treatment for traumatic injuries and other emergency conditions led in 1984 to the passage of a new and separate authorization within the Block Grant legislation. Under the provisions of this legislation, four State demonstration projects to expand and improve EMS for children are to be established in Fiscal Year 1986. Funds for these grants are viewed as "seed money" and are expected to generate financial support from local and private sources for their continuation and expansion to other localities.

Objective o. By 1990, virtually all injured persons in need should have access to regionalized systems of trauma, burns, and spinal cord injury centers.

Baseline In 1979, about 25 percent of the population lived in areas served by regionalized trauma centers.

Status

There are no national data available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment

This objective is not measurable on either a national or State basis. Thus, it is currently impossible to measure the level of achievement toward this objective. Efforts are underway to describe more precisely the intent of this objective and then to establish the tracking meachanisms necessary to determine current status and progress. The creation of a State- sponsored emergency medical service (EMS) advisory office and clearinghouse could serve as a useful focal point for coordinating EMS. There is no reason to believe that this objective cannot be reached by 1990 with a unified national effort involving all sectors of society.

There is some evidence to suggest that some of the elements required to achieve this objective are already in place. According to the American Burn Association, there are now more than 145 burn centers in the United States. The number and distribution of these centers is sufficient to provide virtually all persons in need of burn care with access to such care.

Approximately one third of the 303 EMS regions established under the Emergency Medical Services Systems Act of 1973 have designated trauma centers or established systems of trauma care. Not all of these regions, however, have set up hierarchical EMS systems that would require a transport unit to stop at the closest hospital to stabilize a patient before transport to a trauma center, and ongoing efforts to establish strong hierarchical EMS systems vary widely among the States.

The National Highway Traffic Safety Administration (NHTSA) will begin a major three year project in 1986 to assist States to establish trauma care systems. During the first year of the project, NHTSA will hold a conference for State highway safety and health care professionals to present the case for trauma system development as well as describe strategies for their development. As part of this project, NHTSA will award a series of mini-grants to States and communities needing planning, technical or public information and educational assistance in order to develop and implement a trauma system.

Objective p.

By 1990, at least 90 percent of the population should be served by regionalized metropolitan area poison control centers that provide information on the clinical management of toxic substance exposures in the home or work environment.

Baseline

In 1979, about 30 percent of the population lived in such areas.

Status

In 1985, about 55 percent of the population lived in such areas.

Comment

Based on progress to date, it appears unlikely that this objective will be met. Extrapolation of the rate of increase between 1979 and 1985 in the percentage of the U.S. population with access to a regionalized or metropolitan area poison control center certified by the American Association of Poison Control Centers (AAPCC) indicates that only about 70 percent of the population will be covered by such services in 1990. This objective can be reached, however, with a slight increase in the annual rate of change.

It should be noted that many persons have access to toxic substance information through poison control centers that have not applied for or do not meet the quali-

fications for certification by the AAPCC. The above-cited figures also represent theoretical access, as not all households have phones, some persons have education or language barriers that could preclude the use of such services, and many persons do not know how to contact or lack knowledge about the existence of poison control centers.

Poisoning remains a major public health problem in the United States. An estimated 2.5 million people (AAPCC) had some type of poisoning exposure in 1983 and unintentional poisonings accounted for an estimated 4,300 deaths. An estimated 41 percent of all poisoning deaths occurred in persons 15 to 44 years of age. While poisoning fatalities are higher among older age groups than among young children, approximately 20,000 children were hospitalized for poisoning and another 110,000 were seen in hospital emergency rooms.

Poison control centers are one of the first lines of defense against adverse outcomes from these exposures. These centers educate the public and health professions about prevention, first aid, and medical management for poisoning victims. Because the public or health professional typically call for information and consultation on an emergency basis, most poison centers operate 24 hours a day, seven days a week.

States should consider developing guidelines for the operation of poison control centers as a way to ensure that all poison control centers operating within their borders provide readily accessible, high quality services. Since public information is an important component of any national, State, or local effort to reduce the incidence of and adverse outcome from poisoning, both public and private sector organizations also need to be more aggressive in their efforts to educate the public about poison control services and how to use them.

Objective q. By 1990, at least 75 percent of the States should have developed a detailed plan for the uniform reporting of injuries.

Baseline No data were available.

Status In 1982, 15 percent of State and territorial health departments had developed plans for the uniform reporting of injuries.

Comment Based on progress to date, it appears this objective will be met. States are giving increasing priority to injuries, relative to other causes of morbidity and mortality, and, as a result, are enlarging the resources available for both intervention and surveillance systems in place as of 1982. This number is expected to rapidly expand during the balance of this decade.

CDC is currently working with selected States and other Federal agencies to develop, pilot test, and evaluate model injury surveillance systems for eventual application by State public health agencies. This model system, when developed and disseminated, is expected to rapidly accelerate progress toward achievement of this objective.

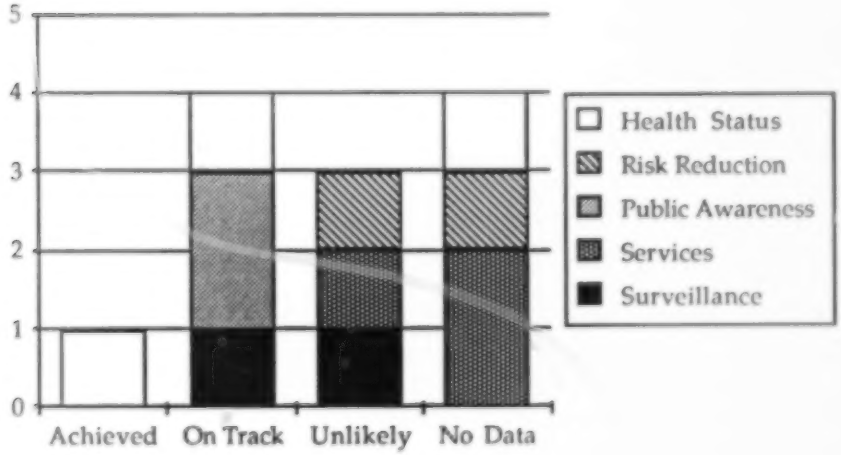
Surveillance is a critical component of any injury control effort. Before injuries can be prevented, those as highest risk of injury must be identified and the types of injuries, including when, where, and under what circumstances they occur, must be known. Through this process, changing patterns of injuries can be observed, control strategies formulated, and, once implemented, the effectiveness

of the intervention strategies can be evaluated. For these reasons it is anticipated that the overwhelming majority of State and territorial health departments not only will have developed detailed plans for the reporting of injuries by 1990, but will be in the process of implementing them as well.

Section I FLUORIDATION AND DENTAL HEALTH

Expectations regarding oral health have evolved over several centuries, from resignation to pain and loss of dentition, to replacement of lost teeth to repair and retention of diseased teeth, and finally to the protection of natural dentition. The dental profession has both responded to and contributed to higher expectations. The inclusion of dental health as one of the 15 priority areas of the Health Objectives for the Nation formally recognized the critical role dental health plays in the comprehensive pursuit of disease prevention and health promotion. Dentistry is a health profession for which prevention has become the preeminent mode of practice. The methods for preventing oral diseases are now widely available and will be refined and made more accessible during the remainder of this decade. The midcourse review of the 12 objectives formulated to address this area suggest that certain refinements would be appropriate, given the progress that has been made since 1980 and the need to target efforts so as to effect improvements in high risk groups. The review also makes it clear that the lack of sound data stands in the way of accurately assessing progress for a number of objectives focused on risk reduction and services.

Status of Fluoridation & Dental Health
(12 Objectives)



IMPROVEMENT OF HEALTH STATUS

Objective a. By 1990, the proportion of nine-year old children who have experienced dental caries in their permanent teeth should be decreased to 60 percent.

Baseline In 1971-74, the proportion of nine-year old children who experienced dental caries in the permanent teeth was 71 percent.

Status In 1979-80, the proportion of nine-year old children who experienced dental caries in their permanent teeth was 49 percent.

Comment This objective has been achieved. Based on progress to date, further reductions in caries at a national level may be noted by 1990.

From 1971-74 to 1979-80, the proportion of nine-year old children who experienced dental caries in their permanent teeth decreased from 71 percent to 49 percent. The National Dental Caries Prevalence Survey (NCPS), conducted by the National Institute of Dental Research, reported an overall reduction of one-third in caries prevalence for U.S. school children aged five to 17. A follow-up survey of U.S. School Children will be initiated in 1986. While the data indicate that the objective has been met, a number of studies have identified differences between the national findings and those of specific target populations. Variations exist with respect to age, geographic location and race. A 1983-84 survey of American Indians and Alaskan Natives, using Indian Health Service (IHS) clinics, demonstrated much higher caries rates than were observed in the NCPS. For example, only 19 percent of five to 19 year olds were free of caries. At age 12 the number of decayed, missing, or filled teeth in the IHS survey was 6.5 compared with NCPS findings of 2.6 and for age 17, IHS findings were 11.9 compared with the NCP average of 6.3.

Data from various surveys have consistently shown that Black children have higher rates of untreated dental decay than the general population. The National Preventive Dentistry Demonstration Project, funded by the Robert Wood Johnson Foundation, confirmed and further illustrated this disparity. The project found Black children to have higher rates of dental caries and tooth loss than the general population. The results of the Hispanic Health and Nutrition Examination Survey, conducted by NCHS, currently under analysis, should shed further light on the prevalence of caries in the Hispanic population. Data on children of migrant farm workers in Michigan indicate generally higher levels of disease and lower availability of treatment services.

Several factors have contributed to the achievement of this objective. Various health promotion and health education efforts, the use of fluorides and the availability of preventive measures such as dental sealants have helped reduce the prevalence of dental caries in children. Also, the improved "quality" and extent of community water fluoridation, through better monitoring and engineering, has been a positive factor nationally. Results from the 1983 Dental Care Supplement of the National Health Interview Survey indicate that almost 90 percent of people between the ages five and 44 years use a dentifrice that contains fluoride. Also, over-the-counter fluoride-containing mouthrinses are now widely available. While the increase in the use of dental sealants nationally has been slow, encouraging results have been demonstrated by the Indian Health Service. Since 1981, the provision of dental sealants has increased 18-fold and the number of sealants placed in 1984 more than tripled the number from 1983.

There are a variety of factors that could impede further progress related to this objective including activities by groups opposed to fluoridation, slow adoption of

sealant technology by the public and professionals, and incomplete insurance coverage for preventive dental services. If programs do not address the special characteristics and needs of populations at high risk for dental caries, these groups may continue to display an unusually high level of decay that will affect the national oral health profile.

While an objective on dental caries in children is highly desirable, the use of age nine as the most appropriate indicator of dental caries experience has been questioned, since only the first (six-year) molars are usually at risk. As demonstrated by the NCPS, the dental caries picture is very different for children in older age groups. For example, 73 percent of the 12-year-olds and 89 percent of the 17-year-olds experienced caries in one or more of their permanent teeth. However, in specifying future objectives on dental caries in children, a number of age groups such as nine, 12 and 17 year olds, are suggested, as well as an increase in the targeted percent of children affected for particular age groups.

Objective b. By 1990, the prevalence of gingivitis in children six to 17 years old should be decreased to 18 percent.

Baseline In 1971-74, the prevalence of gingivitis in children six to 17 years old was about 23 percent.

Status Current national data on the prevalence of gingivitis are not available. National data collection by the National Institute of Dental Research (NIDR) is expected in 1986 with results available in 1987.

Comment Based on progress to date, it appears unlikely that this objective will be met. Several statewide surveys have assessed gingivitis in children. In Iowa, the prevalence of gingivitis, using bleeding upon probing as a criterion, was reported to be 19 percent in 1980 for children aged six to 17 years. In North Carolina (1977), 44 percent of children (five to 19 years old) examined exhibited bleeding upon probing around at least one tooth, without associated periodontal pocketing.

The 1979-80 National Caries Prevalence Survey (NCPS) of U.S. school children included a dental treatment needs component for gingival conditions. The findings revealed that 92 percent of the children had moderate gingival treatment needs and three percent had severe needs. Only five percent did not have gingival treatment needs.

Data from an Indian Health Service 1983-84 oral health survey indicate that almost six out of ten Indian patients age 19 and under who presented for treatment had at least incipient (reversible) gum disease. The potential to attain this objective will depend on the diagnostic criteria used to assess gingivitis. Judging from the baseline of 23 percent in 1971-74, one might have predicted a decrease in gingivitis levels resulting from improvements in personal oral hygiene. However, as previously noted, the 1979-80 NIDR survey showed that the vast majority of school children had at least moderate gingival treatment needs. Thus, attainment levels as low as the targeted 18 percent would seem problematic at this time. The 1986 NIDR child survey will provide some information in this area.

The prevention of gingivitis is dependent upon the daily self-removal of dental plaque by individuals using personal oral hygiene measures. Compliance in personal plaque removal regimens is difficult to achieve, especially for children who

may not be able to practice effective oral hygiene on a regular basis. Indeed, parents must play an active role, especially with young children. In addition, practical institutionally based programs of plaque removal have not shown long-term benefits in reducing oral debris or gingivitis levels.

Continued emphasis on the importance of daily oral hygiene measures, such as brushing thoroughly with a fluoridated dentifrice and proper use of dental floss, should promote the concept of prevention of both major oral diseases—dental caries and the periodontal diseases. Manufacturers of oral hygiene products are actively competing and promoting a variety of approaches. While their appeal may emphasize esthetics and fresh breath, these private sector efforts can be expected to have positive effects on gingival health. Also, the approval of an effective over-the-counter oral antibacterial or antiplaque rinse in the near future could have a major impact on current levels of oral disease, including gingivitis.

Adoption of a valid and widely acceptable gingivitis index, such as those of the World Health Organization and the *Education Dentaire Internationale* as well as an operational definition of gingivitis, would facilitate quantification of the disease problem and allow for comparative analysis. Further elucidation of the etiology and pathogenesis of gingivitis and its relationship to other periodontal diseases should lead to better preventive approaches.

Objective c. By 1990, in adults the prevalence of gingivitis and destructive periodontal disease should be decreased to 20 percent and 21 percent, respectively.

Baseline In 1971-74, for adults aged 18 years and over, 25 percent had gingivitis and 23 percent had destructive periodontal disease.

Status Current national data are unavailable. However, a 1976-77 study in North Carolina demonstrated that 21 percent of adults (20 years old and over) had overt periodontal pocketing. Gingivitis levels were slightly over 40 percent for males and females (black and white). A 1980 Iowa study of adults (aged 18 to 79 years) also showed a 21 percent prevalence of periodontal pocketing, but a 17 percent prevalence of gingivitis without pocketing.

Comment Although current national data are unavailable to track progress related to this objective, it seems likely that the improvements in oral hygiene status and gingivitis noted in the 1971-73 NHANES are likely to continue and that this objective will be attained by 1990. The National Institute of Dental Research (NIDR) is currently conducting a national adult oral health survey which will provide relevant data. The oral health status of working adults (17 to 65 years old) and adults using senior centers (65 and over) will be determined. Specifically, gingival bleeding, the presence of calculus, and loss of periodontal attachment will be assessed. Data from an Indian Health Service 1983-84 oral health survey of clinic patients indicate that the amount of bone loss around existing teeth increases with age. Surprisingly, over 40 percent of patients aged 20 to 24 had destructive periodontal disease (involving bone loss).

Self-reports indicate that most individuals are brushing at least once a day. Also, there has been a gradual increase in the average number of dental visits per person in this country over the past decade. Unfortunately, dental providers have not been well attuned to the prevention and diagnosis of periodontal conditions. Surveys have demonstrated that only between two and five percent of dental

practice time is spent treating periodontal conditions. As the decline in dental caries continues to affect the profile of dental practice, more attention can be expected to be focused on the prevention, diagnosis, and management of periodontal diseases.

The prevention of gingival and destructive periodontal disease conditions is dependent on the regular removal of daily plaque accumulation by individuals. In addition, periodic professional cleaning is necessary to remove calculus, which once established, cannot be removed by personal oral hygiene practices. Marketing efforts by the producers of oral hygiene products, as well as intensive promotion to patients through dental providers, could enhance the adoption of appropriate personal oral hygiene practices. The approval of an effective over-the-counter oral antibacterial or antiplaque rinse in the near future could have a major impact on current levels of oral disease, including gingivitis. It is unclear whether such a rinse would be effective in preventing or controlling overt periodontal disease.

Consideration should be given to shifts in the demographic profile of the U.S. population, specifically the increase in percentages and numbers of older adults. As tooth mortality due to dental caries is reduced, the total number of teeth at risk for the periodontal diseases and for varieties of dental caries, such as root surface caries, increases. Further, the length of time that these surfaces and tissues are at risk also increases. Thus, even if the average amount of disease per person does not change, the magnitude of the oral disease problem nationally is likely to remain large.

Research needs in this area are significant. These studies include determining the specific pathogens responsible for periodontal diseases; identifying the optimum combinations of personal and professional health practices; clarifying the pathogenesis of the diseases in individuals; and developing effective health promotion measures to ensure appropriate personal and professional prevention practices. Further work in the area of chemotherapeutic agents for the prevention of gingival and periodontal conditions is also needed.

RISK REDUCTION

Objective d. By 1990, no public elementary or secondary school (and no medical facility), should offer highly cariogenic foods or snacks in vending machines or in school breakfast or lunch programs.

Baseline No baseline data were available.

Status Current data are not available.

Comment Since no baseline or current data are available, it is impossible to predict whether this objective will be met. To provide surveillance for such an objective would require that a probability sample of public schools and medical facilities be surveyed or that national administrative prohibitions across all schools and medical facilities would have to be implemented.

A number of factors operate to impede achievement of this objective. Sugared snacks have become very widespread in schools and public and private health facilities. The U.S. Department of Agriculture recently determined that the presence of a federally supported school food program within a school does not provide authority to bar the sale of snack foods on the school premises except during specified meal times.

It should be recognized that the sale of sugared snack items has become a major source of revenue for purchasing items such as band uniforms, playground equipment, and is frequently supported by parent-school associations.

A crucial impeding factor is the inability to quantify the relative cariogenicity of various foods with any degree of confidence. The lack of a wide number of artificially sweetened food alternatives should also be viewed as a factor impeding progress. Some substitution of artificially sweetened alternatives would likely occur if a wide selection were available and the choices were competitive in taste, cost, and convenience. Much additional research on sugar substitutes is needed. Industry should take a leadership role in fostering healthy dietary practices, not just in terms of dental health, but in terms of general health.

It would be preferable for the objective to call for alternative snack items (properly identified) to be available to children in school. This would allow for a health education message, promote the substitution of safer foods for clearly highly cariogenic foods, and not undermine the generation of revenue for the schools. There has been a suggestion to delete the reference to "school breakfast and lunch programs," as the relative cariogenicity of many food items is reduced when they are consumed as part of a meal rather than in isolation. Still, all meals should reflect careful planning with an eye toward achieving a balanced diet and avoiding foods with cariogenic potential and minimal nutritional value.

Objective e. By 1990, virtually all students in secondary schools and colleges who participate in organized contact sports should routinely wear proper mouth guards.

Baseline Baseline data were unavailable.

Status Current data are unavailable.

Comment Since no baseline or current data are available, it is impossible to predict whether this objective will be met. While no formal monitoring program exists, some data may be available through national organizations and through State and local health departments. However, it is likely that a high level of compliance with this objective is already being achieved for a number of sports in major and well-organized secondary school and college athletic programs.

Mandatory football and ice hockey mouthguard rules exist through the National High School Federation, National Collegiate Athletic Association, and the Amateur Hockey Association of the United States. Mouthguards are also required in organized amateur boxing. Efforts are currently underway to mandate mouthguards for other sports. Facial and mouth injuries are a recognized problem for children ages five to 13 years. The Little League Association is pursuing solutions. Compliance on an individual participant basis depends on enforcement by coaches, administrators, parents, and referees, as well as motivation on the part of the participant.

While this objective focuses on organized contact sports, attention should also be given to nonorganized sporting events where the risk of injury to the head and oral structures is high. Compliance with good injury prevention practices in these situations is probably low, with little prospect for improvement without a special effort to do so.

Factors impeding progress toward this objective relate to the technical and functional acceptability of many protective mouthguards that are currently available. Because the vast majority are either stock type that are not custom molded, or are self-fitted, they tend to be bulky and restrict speech and breathing—a critical factor in many sports. The more effective custom-made mouthguards are expensive and are provided, generally, only to specified participants, such as quarterbacks in football, who need to communicate clearly. The development of a more streamlined, resilient, and comfortable mouthguard at a reasonable price may increase individual compliance with mouthguard wearing. An increase in the appropriate use of mouthguards might occur through: using mass media to popularize the notion and offer role models for children; making mouthguards more available through the actions of community organizations; and conducting a national mouthguard day through cooperating health and advocacy organizations. Clearcut guidelines based on sound technical evaluation of currently available mouthguard alternatives should be developed and then widely communicated to administrators, managers, coaches, and sponsors of organized sporting activities.

Assessment of this objective on an individual participant level would be difficult, since this would require continuous monitoring on a routine basis. Possibly, examining health outcome measures such as reduced incidence of facial and oral injuries would be a more practical indicator.

It has been recommended that this objective be expanded to include other protective facial gear appropriate for individual sports and be directed at organized sporting events for individuals of any age where injury to the face or oral structures is possible. Also, since the purpose of this objective is to reduce injury to the head and mouth, it has been suggested that, in addition to the emphasis on sports-related injuries, there should be emphasis on the use of seat belts. This would be a cross-cutting action with the accident prevention area. It has also been recommended that several technical corrections or additions be made to the objective that would delete the word "virtually," and provide a definition of contact sports.

PUBLIC AND PROFESSIONAL AWARENESS

Objective f. By 1990, at least 95 percent of school children and their parents should be able to identify the principal risk factors related to dental diseases and be aware of the importance of fluoridation and other measures in controlling these diseases.

Baseline Baseline data were not available.

Status

Data on the knowledge of dental risk factors and preventive measures of school age children and their parents are not available, but the 1985 National Health Interview Survey (NHIS) provides data on the knowledge of people age 18 and over, concerning the prevention of tooth decay and gum disease.

The chart below presents the findings of this survey.

Percent of Population Who Consider Preventive Measures Important

	Tooth Decay		Gum Disease	
	Definitely Important	Probably Important	Definitely Important	Probably Important
Seeing dentist regularly	83	12	83	12
Drinking fluoridated water from early childhood	45	35	33	32
Regular brushing and flossing	90	8	83	13
Use of fluoride toothpaste or mouth rinse	61	29	47	31
Avoiding between-meal sweets	59	30	50	31

Source of Data: National Center for Health Statistics, Disease Prevention and Health Promotion Supplement to the National Health Interview Survey, Provisional Data 1985.

Comment

Based on preliminary data from the 1985 National Health Interview Survey, this objective may be achieved for adults by 1990. Questions on the 1986 NHIS will provide additional information toward assessing progress related to this objective. No national surveys are planned to determine if children can identify risk factors and the importance of preventive measures in controlling oral diseases.

According to the survey data, approximately 90 percent of people, across all age groups were aware of the importance of seeing a dentist regularly, regularly brushing and flossing teeth, using fluoride toothpaste or fluoride mouth rinse, and avoiding between meal sweets to prevent tooth decay. However, for respondents age 65 and over, 76 percent felt fluoride toothpaste or fluoride mouth rinse was important and 83 percent believed avoiding between meal sweets was important. Respondents did not think drinking fluoridated water from early childhood was as important as the other measures in preventing tooth decay, with 45 percent of all ages saying it was definitely important and three of every 10 adults aged 65 and over believed that drinking fluoridated water from childhood was definitely important. Concerning the prevention of gum disease, 96 percent of people across all age groups correctly identified seeing a dentist regularly and regular brushing and flossing of the teeth as important, with little variation across

age groups. A large percentage of respondents thought incorrectly that drinking water with fluoride, using fluoride toothpaste, and avoiding between meal sweets were important in prevention of gum disease.

Several programs are in place that may further enhance public awareness of the dental health issues. They include school-based dental disease prevention education programs offered by State health departments, professional organizations and industry; other Federal and professional public education efforts relating to fluorides, sealants, periodontal diseases and preventive dentistry; and promotional efforts by the private sector to increase dental visits and product sales.

To achieve further progress, a key initiative with the aim of achieving greater public awareness should be organized to unify, coordinate, and schedule the message(s) to be provided, whether through the public media or professional channels. Specific groups, such as those at high risk to disease, will require unique approaches. In addition, proper assessment of progress toward this objective requires specification of the disease in question, its principal risk factors, and the necessary key preventive measures.

Recommendations have been made to change the language and focus of this objective. Having an educated public is critical to the attainment of health promotion and disease prevention efforts. Only when people are cognizant of the role and uses of fluorides will they be able to request and apply it for themselves and for their communities. However, the "public" should not be limited to school children and their parents. The major oral diseases of concern should be specified in order to facilitate surveillance and provide emphasis for targeting interventions. At a minimum, dental caries, periodontal diseases, oral cancers and other oral soft tissue lesions, and conditions due to traumatic injury should be included. Consideration should also be given to malocclusion and developmental defects.

Objective g. By 1990, at least 75 percent of adults should be aware of the necessity for both thorough personal oral hygiene and regular professional care in the prevention and control of periodontal disease.

Baseline In 1972, only 52 percent knew of the need for personal oral hygiene and only 28 percent were aware of the need for dental check-ups.

Status Provisional data from the Health Promotion and Disease Prevention Supplement to the 1985 National Health Interview Survey indicate that 98 percent of the adult population believe that it is important to brush and floss their teeth regularly; and 96 percent think it is important to see a dentist regularly to prevent gum disease.

Comment Based on progress to date, it appears that this objective has been partially achieved. While in 1972, only 52 percent of the population recognized their need for personal oral hygiene, in 1985 approximately 96 percent identified the importance of self-care and regularly seeing a dentist. Although using fluoride toothpaste or fluoride mouth rise and avoiding-between-meal sweets are not considered to be effective in preventing periodontal disease, approximately 80 percent of the respondents thought they were important. Sixty-five percent of those surveyed considered, again incorrectly, that drinking fluoridated water from childhood is important in preventing gum disease.

The public is aware, generally, of the need for personal oral hygiene and regular professional care, but it confuses the tooth decay issue with the periodontal issue. Dental product manufacturers and the dental profession will need to provide health education messages which more clearly distinguish between actions that prevent dental caries and those that prevent infections of the supporting gum tissues, if the public is to understand the differing causes and methods for preventing each condition. Also, self-reporting of dental health practices consistently shows that most individuals brush their teeth daily and approximately 50 percent of the public will visit the dentist within a one-year interval.

Federal, private sector, and professional efforts are under way which may help educate people about the role these factors play in the prevention and control of periodontal diseases associated with systemic diseases and by the use of smokeless tobacco. Awareness of these categories of disease and their respective preventive and control measures is needed.

IMPROVEMENT OF SERVICES

Objective h. By 1990, at least 95 percent of the population on community water systems should be receiving the benefits of fluoridated drinking water.

Baseline In 1975, 60 percent of the population on community water systems was receiving the benefits of optimally fluoridated waters.

Status A 1984 CDC estimate indicates that 61.4 percent of the population using public water supplies had access to fluoridated drinking water. The 1984 data represent 54.6 percent of the total U.S. population and accounts for approximately 129 million people. The 1980 Fluoridation Census (CDC) indicated that 59.3 percent of those served by public water supplies had access to fluoridated water.

Comment Based on progress to date, it appears unlikely that this objective will be met by 1990. Using the rate of growth that has been experienced in fluoridation over the past several years, one could expect that by 1990, only 63 percent of the population on public water supplies will have access to fluoridated drinking water. While this is considerably short of the target level of 95 percent, it would still represent many millions of people enjoying the benefits of fluoridated water. Another Fluoridation Census is planned for 1986. Based on studies by the Environmental Protection Agency, CDC, and data provided by the Association of State and Territorial Dental Directors, the quality of fluoridation, in terms of maintaining optimal levels, has improved since the 1970s.

Community water fluoridation is very effective in reducing the prevalence of dental decay (by up to 50-65 percent). Moreover, the health benefits are available to everyone in the community at a very modest cost. Even those without optimal access to the formal health care delivery system can benefit from this community-based procedure. While the target goal of 95 percent will not be reached by 1990, it is important to maintain an ideal goal to provide proper emphasis.

Several factors, however, may be impeding progress toward the attainment of this objective. A general sense of dental well-being is believed to be developing in the public as a result of the visibility given to the decline in childhood dental decay. The media have identified the lack of dentist "busyness" as being at least partially due to this decline. This may translate into a lessened sense of urgency and a lowered felt need for a broad public or professional response to prevent dental caries and, thus, a declining interest by public officials in such programs as water fluoridation and fluoride mouth-rinsing. Emerging questions on the impact of multiple sources of fluoride on the prevalence of dental fluorosis may create a more conservative atmosphere toward the combined use of fluorides. This could create conflicts between public health officials and manufacturers of fluoride-containing products concerning recommendations for fluoride use.

Practical constraints exist regarding the degree to which fluoridation can be expanded. Of the 58,989 public water supplies in the United States, only 8,575 are fluoridated. Approximately 44,141 systems serve populations of less than 1,000 and only 277 systems serve populations of over 100,000.

In many instances, highly vocal local opposition to fluoridation can be expected to remain strong and—coupled with a shift in the population to older-aged groups which tend not to support fluoridation, together with an increasing ethic of personal responsibility for well-being—may make fluoridation gains difficult in the 1990's.

A multifaceted approach will be necessary to achieve a marked increase in the percentage of the U.S. population served by public water supplies with dentally significant levels of fluoride (0.7 ppm fluoride or higher). Additional efforts will need to be committed to promotion of water fluoridation, education of the public and decision makers, support of the initial installation of fluoridation equipment, and proper monitoring and surveillance activity as part of quality assurance. Current studies on the effectiveness and safety of community water fluoridation would also help in its promotion. Because so many of the communities without a fluoridated water supply are relatively small, the per capita costs for fluoridating will be somewhat higher than in larger metropolitan areas. Fluoridation will remain a health bargain. Improving technology in the areas of fluoride feeding and surveillance, along with the attractive cost-effectiveness of this technology, will facilitate fluoridation in a number of instances, especially in small community and school water systems.

Objective i.

By 1990, at least 50 percent of school children living in fluoride-deficient areas that do not have community water systems should be served by an optimally fluoridated school water supply.

Baseline

In 1977, six percent of school children living in fluoride-deficient areas that did not have community water systems were served by an optimally fluoridated school water supply.

Status

No data are available currently that would describe the population of school children living in fluoride-deficient areas who could be served by a school fluoridator. The 1980 Fluoridation Census (CDC) reported that 167,863 students in 500 schools were receiving fluoridated drinking water, showing an increase over the 124,475 students in 383 schools reported in the 1975 Fluoridation Census. Another Fluoridation Census (CDC) is planned for 1986.

Comment

Due to a lack of data, it is impossible to predict whether this objective will be met. The regionalization of water systems is resulting in the incorporation of schools that were formerly on independent water supplies. Thus, it is unlikely that major increases in the school water fluoridation component will occur. Additionally, the availability of both professionally applied and self-applied fluorides has lowered the marketability of school water fluoridation despite its attractive cost-effectiveness. School water fluoridation will never make a major contribution to the overall fluoridation effort, but it will be highly beneficial to those children who might otherwise be denied access to systemic forms of fluoride.

Promotion of the continuing cost-effectiveness of school water fluoridation, versus other forms of systemic fluorides, and improved technology for delivering fluoride in small water systems should facilitate adoption of this measure. However, it will be necessary for State and local health programs to establish sound, fail-safe surveillance mechanisms to assure compliance with quality standards.

Focusing the objective on the availability of various forms of systemic fluorides to school-aged children who do not have access to fluoride through community drinking water supplies, rather than on school water fluoridation alone, would be useful. For example, such an objective would describe the percentage of children not served by community water fluoridation and recommend that a percentage of these children receive systemic fluoride from birth through age 16 from either fluoride drops, tablets, or school water fluoridation programs.

Objective j.

By 1990, at least 65 percent of school children should be proficient in personal oral hygiene practices and should be receiving other needed preventive dental services in addition to fluoridation.

Baseline

Baseline data were unavailable.

Status

Proxy data exist but the total range of required preventive services is unknown and the criteria for determining proficiency in personal oral hygiene practices are not uniformly developed. A number of questions on the 1986 National Health Interview Survey will provide additional information.

Comment

Due to a lack of data, it is not possible to predict whether this objective will be achieved. However, a variety of school-based caries preventive programs are in existence. Data from the 1983 Association of State and Territorial Health Officers' survey indicate that slightly over three million school children are reported by 43 States to be participating in State-supported fluoride mouthrinse programs. The vast majority of these children live in nonfluoridated areas.

It has been reported that up to 12 million children in schools, preschools, and day care centers are participating in self-applied fluoride programs (this includes fluoride mouthrinsing and fluoride supplement programs). Data from the 1983 National Health Interview Survey indicate that 17 percent of five to 17 year olds used a fluoride mouth rinse at the time the survey was conducted. This same survey also found that almost 90 percent of persons between five and 44 years of age used a fluoridated dentifrice. Additionally, over-the-counter sales of nonprescription fluoride mouthrinses for home use have increased. Manufacturers have reported increases in the sale of pit and fissure sealant materials and a number of public health programs have significantly increased their emphasis on sealant

promotion and the delivery of sealant services. The emergence of antiplaque/calculus dentifrices on the market may offer an enhanced self-applied oral disease prevention technology.

Progress is unknown for the proficiency of oral hygiene practices. However, the high rate of gingival treatment needs identified in the 1979-80 National Institute of Dental Research (NIDR) survey of school-aged children would seem to indicate that a great deal of improvement in personal oral hygiene practices in this group is needed. A follow-up survey on this population group is planned by NIDR for 1986 and will provide an updated status in 1987.

It can be anticipated that the use of fluoride supplements, through individually prescribed tablets or drops, will remain constant. It should be noted that efforts to assure compliance with the daily administration of fluoride tablets, either on an institutional or individual basis, has repeatedly demonstrated only partial success. Data from the 1983 National Health Interview Survey indicate that the usage of supplements drops off drastically with age and that children do not continue to use supplements through the tooth development years (to about age 16). This undoubtedly reduces the caries preventive potential of such methods.

Fluoride mouthrinse programs sponsored by public agencies are unlikely to increase due to emerging cost-effectiveness questions in times of declining caries experience in school children. The home use of fluoride rinses will likely increase due to intensive marketing efforts by industry. Information on this use will be available from the 1986 National Health Interview Survey and will allow determination of the degree of use in high risk populations.

From a conceptual perspective, the objective is appropriate. The control of dental plaque is essential to the prevention of gingival disease and necessary to prevent the onset or recurrence of periodontitis. Also, personal oral hygiene practices incorporating the use of fluoride dentifrices have been shown to be effective in reducing dental decay. Additional specification in the objective concerning other appropriate preventive dental services would be needed before a quantifiable goal with regard to these services could be established. Specific examples of other appropriate preventive dental services are sealants, topical fluorides, and mouthrinses containing fluoride.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective k. By 1990, a comprehensive and integrated system should be in place for periodic determination of the oral health status, dental treatment needs, and utilization of dental services (including reason for and costs of dental visits) of the U.S. population.

Baseline Baseline data were not available.

Status A number of Federal, private sector, professional, and State-based efforts have contributed to components of a comprehensive system for surveillance and evaluation in the United States.

Comment

Based on progress to date, it appears that this objective can be achieved if emphasis on its importance can be maintained. Enhancing factors include the recognition of the need for a comprehensive and integrated system; selected activities which have begun to address this need; suggested ways to achieve it; and the growth of computerized data collection and analysis efforts, which should aid in the rapid dissemination of results.

Still a number of factors have impeded progress in meeting this objective. Comparisons of data are inappropriate where collection activities use different approaches to assess a particular element of health status. Also, under-analysis of existing data has resulted in a restricted understanding of certain issues. In addition, coordination of data collection efforts is lacking and has created gaps in some areas and overemphasis in others. Finally, the large number of organizations and sponsors involved in surveillance and evaluation activities, along with the multiple purposes and formats used, complicate the attainment of this objective.

To help overcome some of these problems, a simple delineation of the type, format, and frequency of information needed is required. Compatibility is needed between certain data collection efforts. Also, issues specific to survey design, such as techniques of sampling, measurement, and analysis, as well as the needs of principal data users, should be resolved.

Establishing criteria for the definitions of "comprehensive and integrated" would facilitate the monitoring of this objective. Definitions of the terms "periodic" and "treatment needs," as well as a delineation of oral health and disease states to be monitored, would be helpful.

Objective l.

By 1985, systems should be in place for determining coverage of all major dental public health preventive measures and activities to reduce consumption of highly cariogenic foods.

Baseline

Not available.

Status

Some progress has been made toward this objective. Specific systems are in place for determining the coverage of a variety of major dental public health preventive measures. Emphasis on determining the coverage of activities aimed at reducing the consumption of highly cariogenic foods has not been great. Ongoing activities that affect the rate of progress include the Association of State and Territorial Health Officers (ASTHO) Reporting System, ASTDD Quarterly Fluoridation Data System, Environmental Protection Agency (EPA) Drinking Water Supply Data, Manufacturers' Reported Product Sales, and National Center for Health Statistics' 1983 and 1986 National Health Interview Survey Dental Supplements.

Comment

Based on available information, it appears this objective was not met. A number of specific systems are in place, however, which provide essential surveillance information. Expansion and enhancement of current systems for determining coverage are necessary in order for the objective to be achieved.

Factors enhancing progress towards this objective include the work of various organizations involved in surveillance activities. Although not many in number, these organizations are attempting to create a cohesive and manageable data collection system which should lead to more accurate and consistent reporting. At this time, there are some problems with the specificity and comprehensiveness of the information, as well as its timeliness. Nevertheless, improvements are being made to existing systems, and annual reports provide current data and allow for some trend analysis.

No significant problems have been identified related to this objective; however, it would be useful to delineate the "major" dental public health preventive measures to be tracked. Beyond a listing, this would include the frequency of surveillance, agreement on the methods to be used, and perhaps a central clearinghouse for receiving, collating, and reporting the findings of these efforts. Also, for clarification, it was suggested that the terms "determining coverage" be defined.

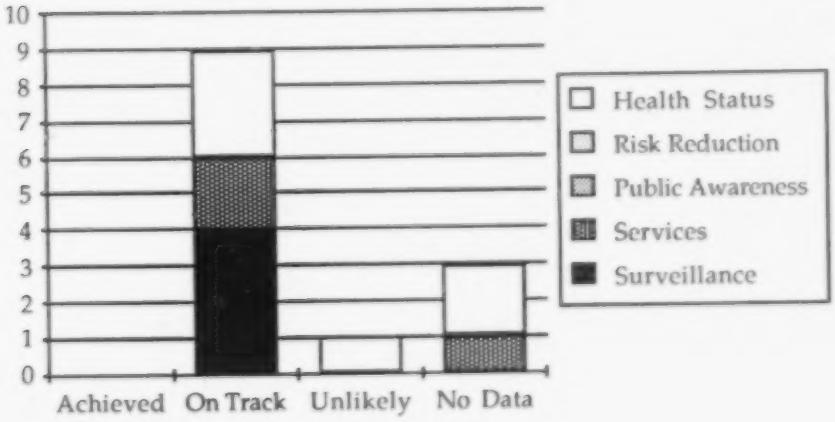
The emphasis on highly cariogenic foods may be inappropriate—given the state-of-the-science on available interventions for altering consumption patterns, as well as the lack of a definitive list of cariogenic foods that could be the focus of such interventions. Instead, this approach to prevent dental caries could be considered as one of the many dental public health preventive measures under surveillance.

Section J — Surveillance and Control of Infectious Diseases

Objectives related to surveillance and control of infectious diseases would have completely dominated any public health strategy of an early period in U.S. history. Infectious diseases were the principal causes of death, and their impacts on infants and children drastically affected the life expectancy figures for American citizens. The fact that infectious diseases comprise but one of 15 priority areas for the 1980s is a tribute to the accomplishment during the first three-quarters of this century. In 1980, the leading causes of death are all chronic diseases usually experienced by adults in the middle and later years of life. Yet, as emphasized by the emergence in the 1980's of Acquired Immunodeficiency Syndrome (AIDS) as a major public health threat, certain infectious diseases still pose challenges to the health of the nation; and maintenance of the progress attained to date—not to mention continued progress—depends greatly on careful, continuous vigilance.

The midcourse review of this priority area, taken as a whole, demonstrates an optimism about the nation's capacity to meet and control infectious diseases and to meet many of the targets set for 1990. It is an optimism firmly rooted in historical accomplishment.

Status of Surveillance & Control of Infectious Diseases (13 Objectives)

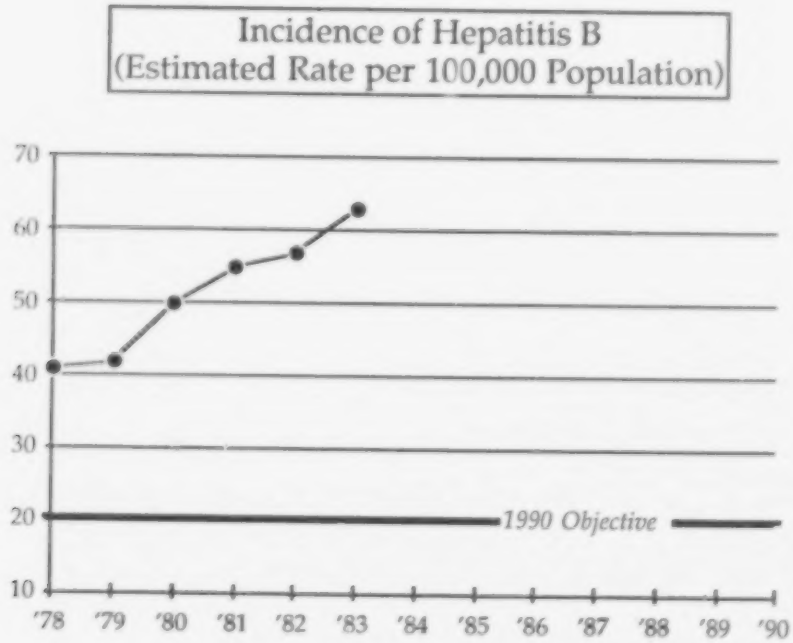


IMPROVEMENT OF HEALTH STATUS

Objective a. By 1990, the annual estimated incidence of hepatitis B should be reduced to 20 per 100,000 population.

Baseline In 1978, the estimated incidence was 41 cases per 100,000 population.

Status In 1985, the estimated incidence of hepatitis B was 69 cases per 100,000 population.



Source: Centers for Disease Control

Comment Based on progress to date, it appears unlikely that this objective will be met. The current strategy for application of hepatitis B (HB) vaccine, introduced in 1981, is to target groups known to be at high risk of infection. These include homosexual men, intravenous drug users, health care workers, clients and employees of institutions for the mentally retarded, and infants born to hepatitis B carrier mothers. It is known that these identifiable high-risk groups account for less than 40 percent of the cases of community-acquired disease, and an additional 15-20 percent of identifiable cases occur among heterosexual contacts of acute and chronic cases of hepatitis B infection. The source of infection of only 60 percent of hepatitis B cases can be identified, and a large proportion of these high-risk groups cannot be identified prior to the time they are at risk of acquiring infection and thus are not available to receive vaccine. The pool of chronic carriers in the U.S. is also increasing, with 12,000-20,000 new individuals entering the pool each year.

Since licensure in 1981, hepatitis B vaccine has not received wide acceptance in the U.S. with less than 20 percent of health care workers and less than five per-

cent of homosexual men receiving vaccine. An intensive effort in one community in gaining access to vaccinate intravenous drug users was not successful.

Currently, CDC is examining factors which may influence vaccine use among health care workers and homosexual men. These include assessment of an individual's knowledge of the risk of disease, knowledge of methods of prevention, attitudes toward the use and acceptance of vaccine, and the degree to which vaccine cost limits vaccine use. A pilot vaccine project will be implemented as a part of the study to determine if the information obtained can be used to improve vaccine application.

The data obtained from the studies and projects concerning HB vaccine acceptance, together with evaluation of impact of the CDC adult immunization activity, will allow CDC to decide by 1988 whether effective vaccination of certain high-risk groups appears attainable. If it appears impossible to access effectively groups at high risk of acquiring hepatitis B and if the national incidence of hepatitis B continues to rise as expected, the vaccine application strategy may require modification to evaluate the feasibility of broader scale approaches to hepatitis B vaccination, including such programs as national screening of pregnant women for HBsAg with vaccination of infants of HBsAg positive mothers and possible broad scale adolescent vaccination. By 1988, it is anticipated that additional suppliers of vaccine will be licensed in the U.S. market and that substantial reduction in cost of a primary vaccination series will have occurred. The stage should, therefore, be set for a decision regarding alternate strategies.

Objective b. By 1990, the annual reported incidence of tuberculosis should be reduced to eight per 100,000 population.

Baseline In 1978, the reported incidence rate was 13.1 per 100,000 population.

Status In 1985, the incidence rate was 9.3 per 100,000 population.

Comment Based on progress to date, it is possible that this objective will be met. There is considerable concern, however, about an apparent leveling off of the downward trend in the incidence of tuberculosis in the United States. The 1985 incidence rate of 9.3 per 100,000 represents a decrease of only 1.1 percent from the 1984 case rate of 9.4 per 100,000. The 22,201 tuberculosis cases reported for 1985 is only 0.2 percent lower than the 22,255 cases reported in 1984. During the previous three years, tuberculosis morbidity had declined an average of 6.7 percent. (Through the first 23 weeks of 1986, there were 2.9-percent more tuberculosis cases reported than during the first 23 weeks of 1985.)

Although the reasons for the slight decline in the 1985 cases are not fully known, evidence supports the hypothesis that HTLV-III/LAV (AIDS) infection of persons infected with the tubercle bacillus has caused an increase in tuberculosis in some areas. The effect of HTLV-III/LAV infection on the trend in tuberculosis between now and 1990 is unknown.

The suspicion that HTLV-III/LAV infection may be responsible for the increased tuberculosis morbidity is based on the following:

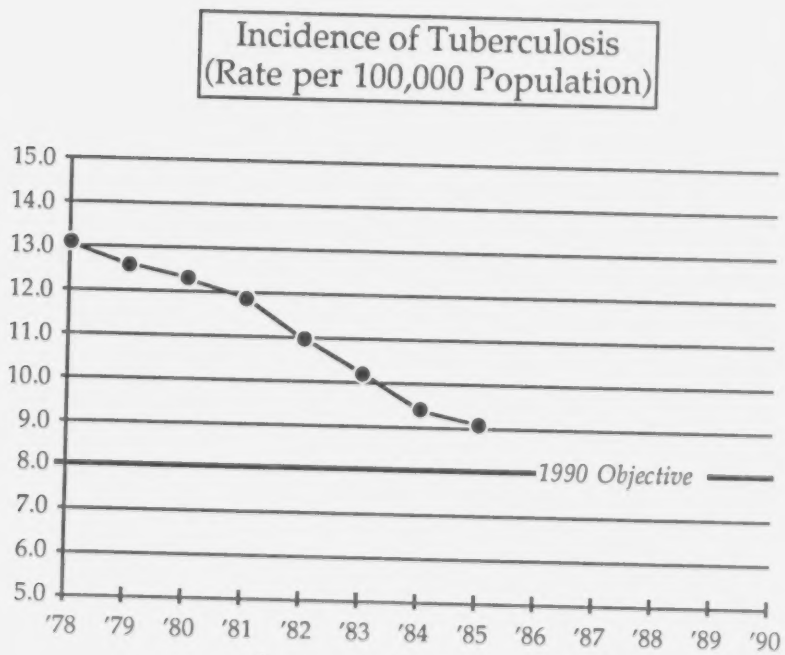
1. Since other immunosuppressive disorders are associated with an increased risk of developing clinically apparent tuberculosis, there is a theoretical reason to believe that compromised immunity secondary to HTLV-III/LAV infection may favor activation of preexisting *tuberculosis* infection.

2. Some of the areas with the largest tuberculosis morbidity increases in 1985 are also some of the areas that have reported the largest number of AIDS cases to date.

3. Data from New York City indicate that increased tuberculosis morbidity is occurring in areas of the city where most AIDS cases have occurred. Matching the New York City tuberculosis case register with the AIDS case register has revealed increasing numbers of AIDS patients who have had tuberculosis. In addition, an increasing number of persons with histories of intravenous drug abuse, a known risk factor for AIDS, has been diagnosed as having tuberculosis.

4. In Dade County, Florida, a substantial number of persons with AIDS have also had tuberculosis. Based on an analysis currently in progress, approximately 10 percent of the AIDS patients reported to CDC from the entire State of Florida through 1985 have also been diagnosed with tuberculosis.

Epidemiologists and tuberculosis program staff at CDC are working closely with health departments in Florida and New York City on studies to better define and understand the tuberculosis/AIDS/HTLV-III problem and to design appropriate, effective control strategies. CDC also is working on developing tests that will improve the diagnosis of tuberculosis. Better diagnostic tests could lead to earlier identification and treatment of persons at highest risk for transmitting tuberculosis to others.



Source: Centers for Disease Control

Objective c. By 1990, the annual reported incidence of pneumococcal pneumonia will be reduced to 115 per 100,000 population (and the estimated incidence of pneumococcal bacteremia should be reduced to seven per 100,000).

Baseline Baseline data were not available for pneumococcal pneumonia. In 1979, the estimated incidence of pneumococcal bacteremia was nine cases per 100,000 population. Pneumococcal bacteremia is used as a specific (but insensitive) indicator of pneumococcal pneumonia.

Status In 1983, the estimated incidence of pneumococcal bacteremia was virtually unchanged, at nine cases per 100,000 population.

Comment Based on current estimates of vaccine efficacy, if vaccine utilization can be increased significantly in high risk groups, it is likely that this objective will be met.

The pneumococcal pneumonia problem is enormous, with as many as 400,000 cases in the U.S. each year. In the elderly and those with underlying diseases, the case fatality rate is 25-35 percent despite theoretically effective antimicrobial therapy. In 1986, the CDC began a laboratory-based, population-based study of pneumococcal bacteremia in a population of 31 million. This study should provide a better understanding of the frequency of pneumococcal bacteremia.

The objective could appropriately be redefined and expressed in terms of bacteremia occurring in vaccine target groups. Although detection of bacteremia is insensitive, it is highly specific. New diagnostic test procedures, such as antigen detection, have not been adequately evaluated; but, they may be used to supplement bacteremia to increase sensitivity of definitive diagnosis without significant loss of specificity.

Success of the adult immunization activity in delivering vaccines to high-risk groups will be vital to the achievement of this objective. Since influenza predisposes to bacterial pneumonia, improvements in delivering more effective influenza vaccines should also reduce the risks of pneumococcal pneumonia. It will also be important to monitor overall effectiveness of the vaccine in reducing morbidity and mortality due to pneumonia, because it remains unknown whether the prevention of pneumococcal pneumonia in a high-risk individual through the use of specific serotypes in a vaccine will simply result in the occurrence of pneumonia due to other etiologic agents or pneumococcal serotypes not contained in the vaccine.

To monitor accomplishment of the objective, it will also be necessary to improve the diagnosis of pneumococcal disease. Current diagnostic methods are neither adequately sensitive nor specific (except for positive blood cultures), and priorities must focus on developing improved diagnostic tests and using them to monitor progress toward the objective. The number of type-specific antigens in pneumovaccine has been increased from 14 to 23. This should increase the number of cases of pneumococcal pneumonia/bacteremia prevented each year.

An additional determinant of success in achieving this objective will be the extent to which acceptance and use of the vaccine by primary care physicians and their patients can be improved.

Objective d. By 1990, the annual reported incidence of bacterial meningitis should be reduced to two per 100,000 population.

Baseline In 1979, the reported incidence was three cases per 100,000 population.

Status In 1983, the reported incidence was three cases per 100,000 population.

Comment Depending on the outcome of vaccine trials now underway, it is possible for this objective to be met. Since *Haemophilus influenzae* b (Hib) represents almost 50 percent of bacterial meningitis cases and young children are at highest risk, efforts have been focused on the development of a vaccine for HiB that would be effective in children under 18 months of age. A field trial has begun in Alaska to evaluate a newly developed candidate vaccine which may be more effective in young children (including those less than 18 months of age). If successful, this trial might yield a licensed vaccine in 1988. Meanwhile, efforts have been mounted to encourage the widespread use of the recently licensed polysaccharide vaccine which is recommended to prevent disease in children beginning at two years of age (or 18 months, if the child is in day care). Efforts also have been directed toward prevention of secondary cases in family and day care center contacts of the primary case through chemoprophylaxis and contact tracing. If the newer HiB vaccine, effective in young children (under 18 months of age), becomes available, it should be possible to reach the objective by 1990. Efforts to prevent meningitis caused by *Neisseria meningitidis* and *Streptococcus pneumoniae* are less promising from the vaccine standpoint at this time. Increased prevention of secondary cases in family and day care center contacts through chemoprophylaxis may also help reduce the incidence of bacterial meningitis.

A satisfactory vaccine is not yet available to protect against *Neisseria meningitidis* group B (most important type in the U.S.), though several efforts to develop one are under way. Widespread use of the present vaccine, which does not protect against group B, is not considered advisable. There is little evidence to suggest that the pneumococcal polysaccharide vaccine recommended primarily for elderly and other high-risk populations would help protect infants against pneumococcal meningitis.

Population-based studies of bacterial meningitis have accurately defined the incidence of disease in selected populations. However, the current passive surveillance systems used to obtain national data result in substantial under-reporting. Emphasis is being placed on the analysis of hospital discharge data to evaluate bias in the passive surveillance system. An active surveillance project in selected areas has recently been initiated by CDC.

Progress toward meeting this objective will require attainment of vaccine efficacy and availability as well as improved reporting of cases to facilitate analysis of progress. Factors which enhance progress toward the objective include promising new techniques for rapid diagnosis, the prospects of developing an improved Hib vaccine effective in children under 18 months of age, development of a vaccine against *Neisseria meningitidis* group B, and more consistently applied efforts to prevent secondary cases among day care center and household contacts.

Objective e. By 1990, the incidence of nosocomial infections in acute-care hospitals should be reduced by 20 percent of what otherwise would pertain in the absence of hospital control programs. A similar percentage should be seen in long-term care and residential care facilities.

Baseline In 1976, an estimated six percent of hospital infections were prevented by hospital control programs. Baseline estimates on long-term care and residential care facilities were not available.

Status

In 1983, an estimated nine percent of hospital infections were prevented by hospital control programs. Data on long-term care and residential care facilities are not available. (Centers for Disease Control)

Comment

Based on progress to date, it is possible for the first part of this objective to be met. Lack of data prohibits prediction of whether the second part will be achieved. Progress so far is partially attributable to increases both in surveillance and control components of hospital infection control programs and to an increase in the percentage of hospitals with a ratio of one infection control nurse to every 250 acute-care beds. The categories of infections with the greatest reduction are nosocomial urinary tract infections and bacteremias. Little progress was made in the prevention of surgical wound infections between 1976 and 1983.

The objective can be achieved through application of programs and technologies available over the next five years, but only if the rate of progress reported between 1976 and 1983 is increased. Achieving this objective will require assisting hospital control programs to target more effectively their surveillance and control efforts; providing them with the ability to analyze their surveillance data in a rapid, timely fashion; and training hospital epidemiologists to direct such programs. As the sophistication of medical technology increases during the 1990's, the average patient risk for nosocomial infection will increase. Therefore, there will remain a critical need to assure that hospitals maintain optimal infection control programs.

IMPROVEMENT OF SERVICES

Objective f.

By 1990, 95 percent of licensed patient care facilities should be applying the recommended practices for controlling nosocomial infections.

Baseline

Baseline data were not available.

Status

Current data are not available to track progress in achieving this objective.

Comment

Because of the lack of data measuring progress in achieving this objective, it is not possible to predict whether it will be met. There is general consensus that substantial progress has been made over the period between 1976 and 1985 in applying recommended practices. Part of the apparent progress is attributable to an increase both in surveillance and control components of hospital infection control programs. However, little progress was made with respect to an increase in the proportion of hospitals with trained epidemiologists and the proportion of hospitals reporting surgical wound infection rates to surgeons.

This objective appears to be achievable with application of programs and technologies available over the next five years, though measurement of an indicator to confirm this achievement may be difficult. Achievement of this objective will require effective promotion and dissemination of the results of the Study of the Effectiveness of Nosocomial Infection Control (SENIC) Project. Various factors and trends, including cost-containment efforts, are likely to influence the contin-

ued rate of progress. The case must continue to be made that such programs are cost-effective.

Objective g. By 1990, surveillance and control systems should be capable of responding to and containing: (1) newly recognized disease and unexpected epidemics of public health significance; and (2) infections introduced from foreign countries.

Comment Based on continuing progress to date, it appears that this objective will be met. The CDC is promoting and developing the use of rapid communications systems among local, State, and Federal health programs. The Epidemiologic Surveillance Project (ESP), now operational in 16 States, is a surveillance system that provides a framework for the rapid analysis of the demographic and epidemiologic characteristics of national, regional, State, and county disease surveillance data using high-speed computer techniques.

CDC continues to develop new methods of detecting geographic origins of disease patterns using the technology of molecular biology. In addition, statistical research is currently underway to aid predictions of the regional, national and international outcomes of influenza epidemics once they begin.

Objective h. By 1990, at least 50 percent of people in populations designed as targets by the ACIP should be immunized within five years of licensure of new vaccine for routine clinical use.

Baseline Baseline data were not available.

Status Two vaccines have been licensed for routine clinical use since this objective was established, one to immunize high risk populations against Hepatitis B and the other to immunize children 24 months of age against *Haemophilus influenzae* b. The status of each is as follows:

- By 1985, 20 percent of those targeted to receive Hepatitis B vaccine, on average, were immunized. The range extended to a high of 30 percent among health care workers from a low of four percent among other groups. Hepatitis B vaccine was licensed for public use in November 1981.
- By the end of 1985, an estimated 3.5 million doses of *Haemophilus influenzae* b (Hib) vaccine had been distributed and an estimated three million doses had been administered. No data are available on the number of doses administered to the target age group, children two years of age. *Haemophilus influenzae* b vaccine was licensed for public use in April 1985.

Comment Based on progress to date, it appears likely the intent of this objective could be reached relative to both the Hepatitis B vaccine and the *Haemophilus influenzae* b vaccine.

Hepatitis B. The CDC is working to strengthen professional and public education efforts at the state and local level regarding the benefits and risks of Hepatitis B

vaccine. Liaison activities with professional groups, public health agencies and voluntary organizations to promote the use of Hepatitis B vaccine are also under way. In addition, CDC has issued updated recommendations on the prevention of Hepatitis B through the use of the vaccine, published recommendations on adult immunization with Hepatitis B vaccine in a special *MMWR* supplement, and published a report on the occupational risk of Hepatitis B infection in hospital workers. An information form about Hepatitis B vaccine also has been developed for use with the general public.

To learn more about Hepatitis B vaccine, CDC is conducting a vaccine demonstration project in American Samoa. Information from this project should help investigators devise strategies for eliminating the transmission of Hepatitis B in areas where the disease is endemic. CDC also is studying how long the protection afforded by the vaccine persists.

As part of its ongoing efforts to increase the acceptance and use of the vaccine within high risk populations, CDC has awarded a contract to determine those factors which play a key role in Hepatitis B vaccine acceptance among homosexual men. CDC also is in the process of developing educational materials and programs to increase physician use of the vaccine with individuals who fall within those groups targeted for receiving the vaccine. In a related activity, CDC has contacted major national health insurers and prepayment plans to determine coverage for Hepatitis B vaccine.

If the intent of this objective is to be realized in relation to Hepatitis B vaccine, public and private sector efforts to reach target groups with the vaccine will have to be intensified. This poses a special challenge to providers and the public health community as there is less of a tradition in adult medicine than in pediatrics for immunization. Surveillance systems will have to be improved as well. The best estimates of disease incidence are from the CDC Sentinal Counties Study which is not a representative sample. Also, there is no national source of data on Hepatitis B vaccine coverage.

Haemophilus Influenzae B. The ACIP now recommends that all children be immunized with Hib vaccine at two years of age. The ACIP also recommends that children between the ages of three and four years of age may be immunized, but the decision to immunize should be based on risk of disease. No data are available on the proportion of the administered Hib vaccine that has been received by children older than two years of age. The ACIP also recommends that children between 18 and 23 months of age, particularly those in a high risk group such as daycare attendees, may be considered for Hib vaccine. This age group probably accounts for only a small proportion of Hib vaccine administered to date. If the ACIP recommendations are fully implemented, this objective, with respect to Hib vaccine, will clearly come within reach.

In general, private sector providers and public sector providers each administer vaccines (all types) to 50 percent of U.S. children. Because of the high cost of Hib vaccine ($68.50 per 10 dose vial) and the lack of a consolidated Federal purchase contract, few States, counties or cities purchased Hib vaccine for public providers during 1985. Hence, most of the Hib vaccine administered in 1985 was administered by private health providers. During 1985 no Federal immunization grant monies were available for the purchase of Hib vaccine.

In January of 1986, two additional manufacturers were licensed to produce Hib vaccine. In February 1986, a Federal consolidated vaccine purchase contract for Hib vaccine was negotiated. Under this contract, State health departments are able to purchase Hib vaccine at the negotiated price of $30 per 10 dose vial. Now that less expensive vaccine is available to the public sector and more manufactur-

ers have entered the market, some of the problems of providing vaccine coverage to the target group may be overcome. But, unless States identify funds for Hib vaccine purchase for administration through the public sector, the 1990 objective of 50 percent coverage of children two years of age may not be reached. It is likely that a conjugated vaccine against *H. influenzae* type b for use in infants in a multiple dose schedule may become available before 1990.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective i. By 1990, data reporting systems in all States should be able to monitor trends of common infectious agents not now subject to traditional public health surveillance (respiratory illnesses, gastrointestinal illnesses, otitis media) and to measure the impact of these agents on health care cost and productivity at local and State levels and, by extension, at the national level.

Comment Based on successful development of a model surveillance system, it appears likely that this objective will be met by 1990. This is a very broad objective and could perhaps be rephrased and sharpened somewhat. In 1980, when the objectives were formulated, the examples of infectious diseases not subject to traditional public health surveillance were respiratory illnesses, gastrointestinal illnesses and otitis media. Other diseases, such as chlamydia and herpes, could appropriately be measured at local and State levels. With increasing sophistication of telecommunications, monitoring clinic and/or physician visits will be very appropriate and feasible. The Model Surveillance Project, which has been developed by CDC will address these issues. Using data collected on the incidence of these diseases it should be possible to estimate their impacts on cost and productivity.

Objective j. By 1990, the extent of epidemics of respiratory and enteric viral illnesses should be predicted within two weeks after they appear through community-wide sentinel surveillance systems.

Comment Based on plans that have been formulated, it appears that this objective will be met in 20 to 30 States. The background and thrust of this objective come from field testing of certain viral vaccines that are in the development stage. Ultimately, CDC may become involved in the ongoing surveillance of some of these diseases if the vaccines are licensed and are widely used throughout the U.S. In a research and developmental stage, CDC is establishing a Model Surveillance Project within four States to provide a computer-assisted intrastate disease surveillance system. This system will promote and facilitate rapid transfer of disease occurrence data from local/city health departments to State health departments. The technology of this system could be adopted in many States after its advantages are proven. By extension, this technology could be applied within communities, between

providers and health departments, increasing the timeliness of community-wide surveillance. Perhaps 20 to 30 States would have such a system by 1990.

Objective k. By 1990, all State health departments should be linked by a computer system to Federal health agencies for routine collection, analysis, and dissemination of surveillance data, rapid communication of messages, and epidemic aid investigations.

Status In 1985, 15 States are linked with CDC.

Comment Based on progress to date and the schedule for computer-based linkage of additional States with CDC, it appears that this objective will be met.

The Epidemiologic Surveillance Project (ESP) currently links CDC with 15 State health departments for the routine collection, analysis, and dissemination of surveillance data. Twenty-five States should be on line by the end of 1986, 35 by 1987, 40 by 1988, 45 by 1989, and 50 by 1990. In addition, 31 States are linked to CDC over the Medical Information Network (MINET) and are able to transmit messages now. All 50 States should be linked over MINET by 1988.

[Note: In July 1986, 24 States, New York City, and Puerto Rico were linked with CDC's ESP.]

Objective l. By 1990, laboratories throughout the country should be linked for monitoring infectious agents and antibiotic resistance patterns and for disseminating information.

Comment Based on plans that have been formulated in the public and private sectors, it appears that this objective will be met. To facilitate the appropriate maintenance and improvement of laboratory services necessary for monitoring infectious agents and antibiotic resistance patterns, CDC is providing: (1) management consultation and training in the provision of laboratory services, (2) technical consultation and training in the performance of laboratory procedures, and (3) performance evaluation of laboratory services through proficiency testing. Current ongoing programs include the routine provision of all these services for a wide variety of infectious disease agents.

Special performance evaluation surveys are being developed to monitor more closely laboratory services in selected public health priority areas and to provide assistance in order to correct identified deficiencies. Special efforts are underway with the National Committee for Clinical Laboratory Standards to develop more appropriate and cost effective methodologies and practices for internal quality control of laboratory procedures. Plans are being formulated to conduct cooperative agreements with States to develop model programs designed to reach the small and remote laboratories providing services to the Nation's population.

Objective m. By 1990, the annual incidence of legionellosis should be reduced to 17 per 100,000 population.

Baseline In 1979, the estimated incidence rate was 23 cases per 100,000 population.

Status Adequate data are not available to estimate progress in achieving this objective.

Comment Because adequate data are not available to track progress, it is not possible to predict whether this objective will be met. Measurement of progress is hampered by absence of adequate population-based data and by inadequate and/or underused diagnostic methods. The baseline estimate of 23 cases per 100,000 is derived from a single population-based study conducted in Seattle in 1979.

Defining the true incidence of legionellosis is difficult because the disease cannot be diagnosed on clinical grounds alone, and the existing diagnostic laboratory tests are not available or may not be used in many hospitals. Because the true incidence of legionellosis is uncertain, it is unknown whether the incidence of this disease has been reduced.

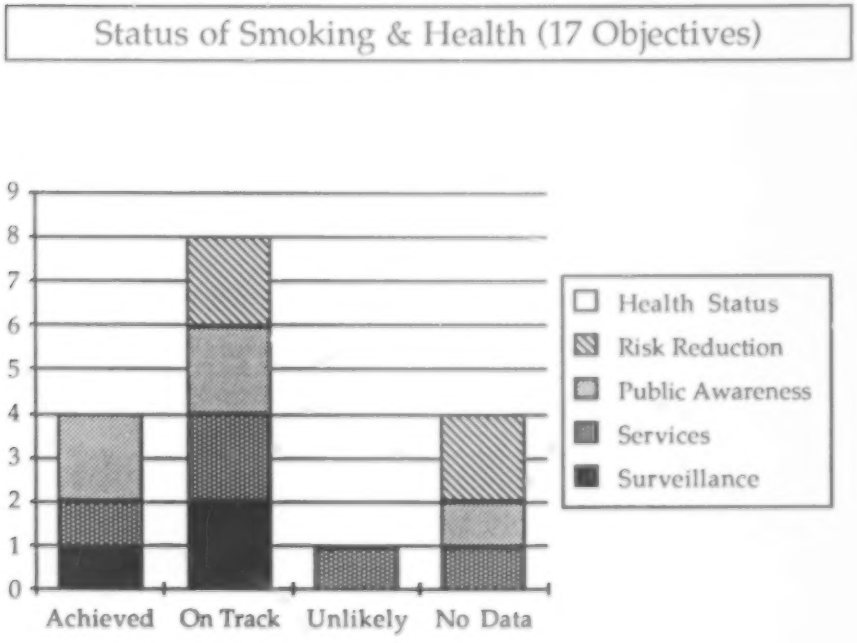
III. HEALTH PROMOTION

K. Smoking and Health
L. Misuse of Alcohol and Drugs
M. Nutrition
N. Physical Fitness and Exercise
O. Control of Stress and Violent Behavior

Section K SMOKING AND HEALTH

Today cigarette smoking is recognized as the most important single preventable cause of death in our society. The evidence linking tobacco use with disease, disability, and premature death is extensive. This body of information continues to grow as research reveals more about the health effects of tobacco use. Cigarette smoking is responsible for more cancers and more cancer deaths than any other known agent. Smoking is also a prime risk factor for heart and blood vessel disease, chronic bronchitis, and emphysema. In addition, pregnant women who smoke are more likely than nonsmokers to experience complications during pregnancy and deliver babies who are born prematurely, are small or underweight, have respiratory and cardiovascular problems, or die within the first year of life.

There has been a dramatic shift in the smoking behavior of the U.S. population since the release in 1964 of the first Surgeon General's Report on the Health Consequences of Smoking. More than 37 million smokers have quit smoking and the proportion of adult smokers has declined from 42 percent in 1965 to roughly 30 percent in 1985. Dramatic progress has been made in the case of men, with the proportion of adult males who smoke falling to 33 percent in 1985 from 52 percent in 1965. The same achievement has not been repeated among women. Although

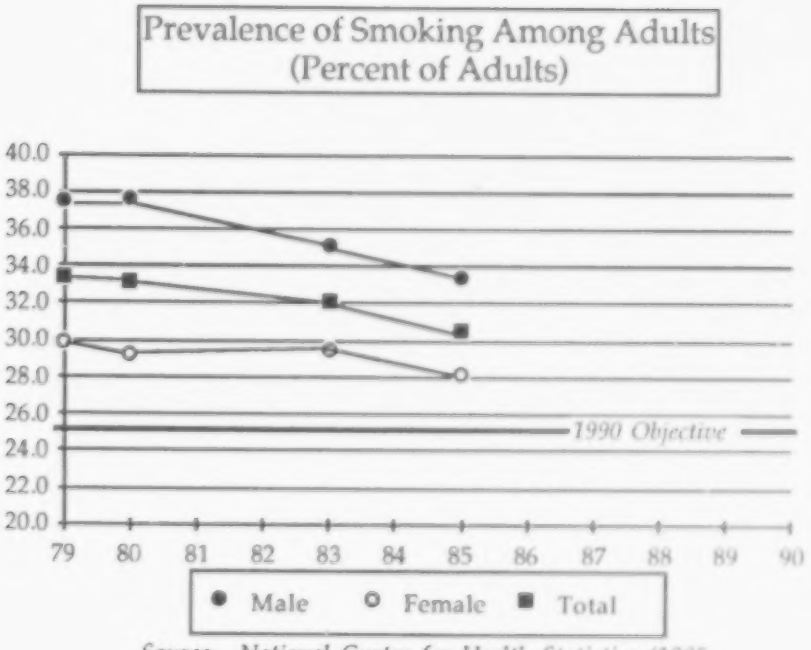


the proportion of adult women who smoke has dropped from 34 percent in 1965 to 28 percent in 1985, this change is not as substantial as that reported for men during this same period. Furthermore, smoking rates among women at younger ages have actually increased. A national survey conducted in 1983 found that 37.5 percent of women between the ages of 20 and 24 reported being regular smokers. This represents a 14.7 percent increase over 1980, when 32.7 percent of women in this age-group reported that they regularly smoked cigarettes.

The steady decline in smoking prevalence rates represents a major health achievement, but, much remains to be done. The 17 objectives in this priority define a strategy for changing smoking behavior in this country. While substantial progress has been made toward realizing these objectives, cigarette smoking will continue to pose a risk to the health and vitality of the American people until that point when society at large no longer views smoking as a normal, acceptable behavior.

RISK REDUCTION

Objective a. By 1990, the proportion of adults who smoke should be reduced to below 25 percent.



Source: National Center for Health Statistics (1985 Provisional)

Baseline

In 1979, the proportion of the U.S. population 18 years of age and over that smoked was 33.5 percent.

Status

In 1985, the proportion of the U.S. population 18 years of age and over that smoked was 30.5 percent.

Comment

Based on progress to date, it appears likely this objective will be met. Overall, smoking prevalence rates are at their lowest point since 1955. The change in adult smoking behavior between 1965 and 1985 is illustrative of this trend. Forty-three percent of the population aged 18 and older smoked in 1965, but by 1985 the proportion had fallen to 30.5 percent.

Within the adult population, the decline in smoking behavior has been much greater among men than among women. Between 1965 and 1985 smoking prevalence among adult men fell from 52 percent to 33.5 percent. During the same 20 year period, the proportion of adult women who smoked cigarettes declined from 34 percent to 28.2 percent. While a smaller percentage of women smoke than men, smoking rates are increasing rather than decreasing among women 20 to 24 years of age. Today approximately 38 percent of women in this age group are regular smokers compared to 33 percent in 1980.

A matter of special concern is that, coincident with the overall decline in smoking prevalence, there appears to be an increase in the intensity of smoking. There are fewer people smoking, but those who smoke seem to be smoking more. The percentage of male smokers who consume 25 or more cigarettes per day increased from 24 percent in 1965 to approximately 31 percent in 1985. The trend is similar for women, with the percentage of female smokers who consume 25 or more cigarettes per day increasing from 13 percent in 1965 to 21 percent in 1983.

Because cigarette smoking is an addictive behavior affecting the chemistry of the brain and nervous system, it offers special challenges. Also, many within U.S. society accept smoking and see it as glamorous or a sign of success. A continued and lasting decline in the proportion of the population that smokes will depend on the success of public and private sector efforts to persuade individuals, especially teenagers and young adults, not to take up smoking. The development of effective methods for educating the public about the health risks of smoking and assisting smokers to quit are also important elements directly influencing progress toward reaching this objective.

Objective b.

By 1990, the proportion of women who smoke during pregnancy should be no greater than one half the proportion of women overall who smoke.

Baseline

Baseline data were not available.

Status

There are no national data available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment

Since no data are available for this objective, it is not possible to evaluate whether the incidence of smoking by pregnant women is increasing or decreasing. Data from the NCHS show that at the beginning of their pregnancy, more than one-third of mothers under 25 years of age and about one-fourth of older mothers smoke, but these data apply only to the 80 percent of mothers who are married. Most unmarried mothers are under 25 years of age and, given recent increases in

the number of younger women who smoke, may be more likely to be cigarette smokers but less likely to give up smoking during pregnancy.

Pregnant women who smoke are more likely than nonsmokers to deliver babies who are born prematurely, are small or underweight, have respiratory and cardiovascular problems, or die within the first year of life. Information cited in *Preventing Low Birth Weight*, a report issued by the Institute of Medicine in 1985, suggests that about 20 to 25 percent of women who smoke at the beginning of their pregnancy quit on their own sometime during the nine months and that aggressive intervention programs can encourage up to 30 percent more to stop.

Both the public and the private sectors are increasing their efforts to inform health care providers and the general public, especially women in the childbearing years, of the hazards associated with smoking during pregnancy. But the lack of specific knowledge concerning the adverse health effects of smoking may prove to be a factor that impedes progress toward attainment of this objective. Further research on smoking and pregnancy outcome is needed, as well as research that provides information on how to structure interventions to reach specific high-risk groups, what motivates women to stop smoking during pregnancy, the role of social support, and how to encourage continuation of nonsmoking behavior after delivery.

The commitment of both the public and private sectors to efforts aimed at helping women stop smoking during pregnancy is needed if this objective is to be reached. New warning labels began appearing on cigarette packages in October 1985 containing the following messages: "smoking by pregnant women may result in fetal injury, premature birth and low birth weight." While public information programs are a major factor in motivating women to stop smoking during pregnancy, counseling by women's physicians or other primary care clinicians appears to be one of the most effective ways to actually get women to quit.

While the motivation to quit smoking may be very high during pregnancy, it can also be a time of great stress for many women and thus a time when quitting may be more, rather than less, difficult. In the long run, the best way to reduce cigarette smoking during pregnancy is to create an environment where young people never take up smoking.

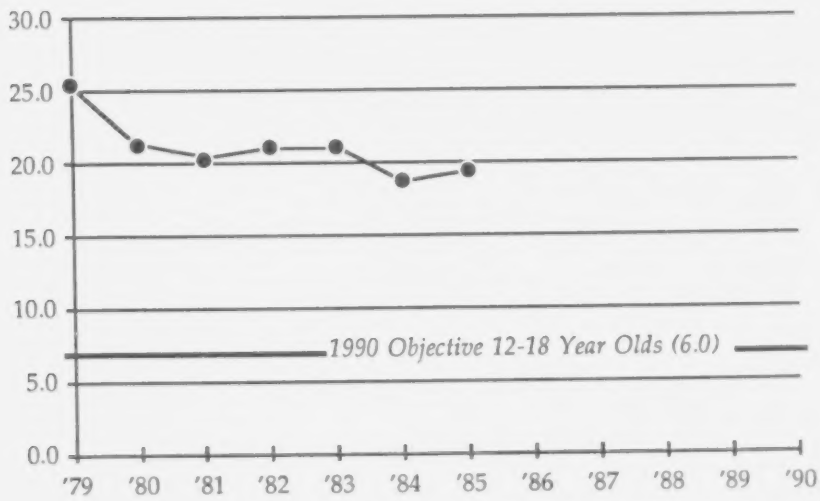
Objective c. By 1990, the proportion of children and youth aged 12 to 18 years who smoke should be reduced to below six percent.

Baseline In 1979, the proportion of 12 to 18 year olds who smoked was 11.7 percent.

Status No new national data on the smoking behavior of 12 to 18 year olds have been collected since 1979; therefore, it is not possible to show changes in smoking prevalence in this age group. Information has been collected, however, on the smoking behavior of high school seniors and these data provide some insight into what may be happening throughout the 12-18 age group. Data from the high school senior survey show a dramatic decline in the daily use of cigarettes among this group, from a high of 26.8 percent of high school seniors reporting daily use of cigarettes in 1976 to a low of 18.7 percent in 1984. The 1985 survey found a slight increase, with 19.5 percent of high school seniors reporting daily cigarette use.

The Office on Smoking and Health is planning to initiate a survey in 1986 which should provide new national data on the smoking behavior of 12 to 18 year olds and measure progress toward this objective.

Prevalence of Student Smoking
(Percent of High School Seniors)



Source: Office on Smoking and Health, PHS

Comment

It is likely that this objective will be achieved if the decline in high school senior smoking is mirrored throughout the 12 to 18 age group, and if the 1985 upturn in the percentage of seniors who smoke is not the beginning of a trend. Achievement of this objective is an important element of a broader national effort to reduce the burden of illness in the United States attributable to smoking. Age of initiation of the smoking habit is known to be inversely associated not only with lung cancer mortality, but mortality from all three major smoking-related diseases. That is, the younger the age one begins to smoke, the greater the likelihood of early mortality. Also, the younger a person is when he or she starts to smoke, the more likely that person is to be a heavy smoker as an adult and to continue to smoke well into the adult years.

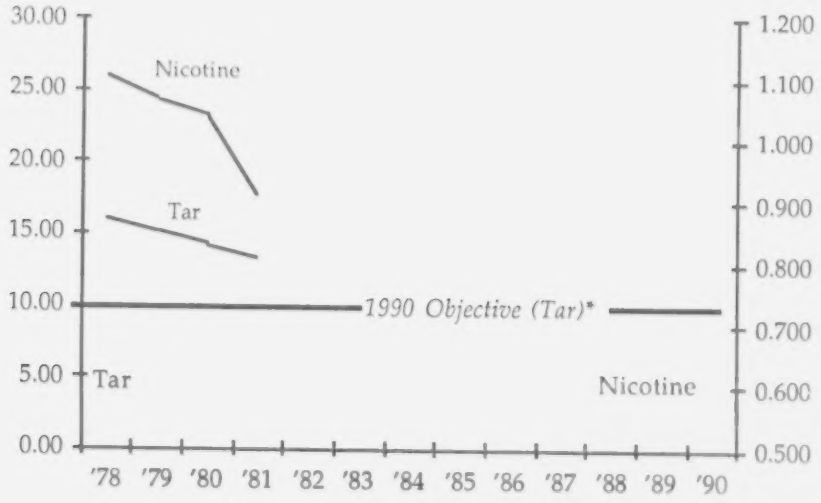
Over the long term, the most important single deterrent to smoking by young people may well be their awareness of the health hazards of smoking. This points to the need of continuing to emphasize the teaching of these hazards through the schools, especially during the elementary grades. For older children and adolescents, the ability to resist peer pressure and the declining social acceptance of smoking are key issues. States and localities need to consider a move to more strictly enforcing laws which prohibit the sale to and use of cigarettes by minors. Because there are now more girls and young women smoking than boys and young men, and this difference appears to be accelerating, efforts to change the smoking attitudes and behaviors of young women also need to be strengthened.

Objective d. By 1990, the sales-weighted average tar yield of cigarettes should be reduced to below 10 mg. The other components of cigarette smoke known to cause disease should also be reduced proportionately.

Baseline In 1978, the sale-weighted average tar yield was 16.1 mg.

Status In 1981, the sale-weighted average tar yield of cigarettes consumed in the U.S. was 13.22 mg and the sales-weighted average nicotine yield was 0.91 mg.

Mg of Tar and Nicotine per Cigarette
(Weighted Average)



Source: Federal Trade Commission
** There is no 1990 Objective for nicotine*

Comment Based on progress to date, it appears likely that this objective will be met. The sale-weighted average tar yield of cigarettes declined 18 percent between 1978 and 1981. If the rate of decline between 1981 and 1990 increases slightly over the rate at which cigarette tar yields declined between 1978 and 1981, the target set for 1990 will be realized.

The Public Health Service (PHS) issued an announcement in 1966 that stimulated a substantial change in the way consumers view cigarettes. That announcement alerted consumers to the growing body of scientific evidence indicating that the lower the tar and nicotine content of a cigarette, the less harmful the effect. The PHS announcement also highlighted reports from scientific studies showing that if smokers switched to low-tar cigarettes they appeared to reduce their cancer risk. Consumer demand for low tar cigarettes has increased steadily since this announcement was released. This change in consumer preference, coupled with stepped up advertising and promotional efforts of the cigarette companies, led to a 39 percent decline in the average tar yield of cigarettes between 1968 and 1981.

The decline in tar yields, thus far, has been accomplished by a reduction in the yields in older brands as well as the introduction of new, "low-tar" brands. In

1983, over 60 percent of each cigarette advertising dollar was allocated to the advertisement of low- and ultra-low-tar brands.

Even though the benefits of switching to a lower-yield cigarette are less than the benefits of quitting entirely, accepted medical practice suggests that if smokers are unable or unwilling to quit smoking, they should be advised to switch to a lower-tar and nicotine cigarette if they do not use one. At the same time health care providers should warn smokers switching to a low-tar and nicotine cigarette not to increase their dosage, as many smokers increase the number of cigarettes they smoke and inhale more deeply after switching to a lower yield cigarette. There is no safe cigarette, no safe level of consumption, and such compensatory behavior may negate any advantage of switching to a lower yield product, and may even increase the health risk.

Cigarettes are easily manipulated, and scientific evidence suggests the tar and nicotine yields obtained through current testing methods may not correspond to the dosages individual smokers actually receive. A cigarette advertised as being in the one to five mg tar range can turn into a 15 to 20 mg. tar cigarette if a smoker takes more and deeper puffs or even partially blocks the ventilating holder or channels found in the cigarette filter.

Another issue that remains unresolved is the question of whether low-yield cigarettes introduce new risks through their design, filtering mechanisms, tobacco ingredients, or additives. Whether this objective continues to be an appropriate focus for public and private sector activities aimed at reducing the health risks attributable to cigarettes depends on the results of further scientific inquiry and what it reveals about the ways in which low-yield cigarettes may influence an individual's risk for disease.

PUBLIC AND PROFESSIONAL AWARENESS

Objective e. By 1990, the share of the adult population aware that smoking is one of the major risk factors for heart disease should be increased to at least 85 percent.

Baseline In 1975, the share was 53 percent.

Status Provisional data from the 1985 Health Promotion and Disease Prevention Supplement to the Health Interview Survey indicate that 91 percent of the adult population is aware that cigarette smoking increases the risk of heart disease.

Comment Based on the provisional data from the Health Interview Survey, it appears that this objective has been met. Despite this fact, efforts to educate the public about the adverse health outcomes associated with smoking need to continue. Coronary heart disease (CHD) is the single most important cause of death in the United States today and smoking is one of the three major risk factors for CHD, accounting for up to 30 percent of all CHD deaths.

The series of rotating warning messages from the Surgeon General that have been appearing on cigarette packages and in advertising since October 1985 is one

mechanism for continuing to alert the general public to the link between coronary heart disease and smoking. One warning states, "smoking causes lung cancer, heart disease, emphysema, and may complicate pregnancy." While these messages serve to notify the public that smoking endangers health, they are but one element of a broader national effort to educate the public about the hazards of smoking. Federal, State and local governments, voluntary agencies, and the health professions are all actively involved in programs to develop and disseminate information concerning the link between smoking and disease.

Objective f.

By 1990, at least 90 percent of the adult population should be aware that smoking is a major cause of lung cancer, as well as multiple other cancers including laryngeal, esophageal, bladder and other types.

Baseline

Baseline data were not available.

Status

Provisional data from the 1985 Health Promotion and Disease Prevention Supplement to the National Health Interview Survey indicate that:

- 95 percent of the adult population are aware that smoking increases a person's chance of getting lung cancer,
- 88 percent of the adult population are aware that smoking increases a person's chance of getting cancer of the larynx,
- 80 percent of the adult population are aware that smoking increases a person's chance of getting cancer of the esophagus, and
- 35 percent of the adult population are aware that smoking increases a person's chance of getting bladder cancer.

Comment

Based on the provisional data from the National Health Interview Survey, it appears likely that this objective will be met. Although substantial number still do not know the extent to which smoking increases a person's risk for developing certain cancers, especially cancers of the mouth, esophagus, and bladder, significant progress has been achieved in general public awareness about the links between smoking and cancer.

Cigarette smoking is the major single cause of cancer mortality in the United States. The 1982 Surgeon General's Report on the Health Consequences of Smoking provided a comprehensive review of the evidence linking smoking to cancer. Smoking has been implicated as a major cause of lung, larynx, mouth, and esophageal cancer, as well as a contributing factor for development of bladder, kidney and pancreatic cancer. While information about the relationship between cigarette smoking and cancer is generally available, there continues to be a gap in the public's knowledge about this relationship. Data indicate that smokers are more likely to have incorrect beliefs about the relationship between smoking and cancer than are nonsmokers, and the heavier the smoker, the more likely he or she is to express disbelief about this relationship.

The series of rotating warning messages from the Surgeon General that have been appearing on cigarette packages and in advertising since October 1985 should serve to increase the public's knowledge as to the relationship between smoking and cancer. These messages are but one part of a broader national effort to educate the public about the health hazards of smoking. Federal, State, and local governments, voluntary agencies, and the health professions must continue

developing and disseminating information to educate the general public, especially those at high risk, about the link between smoking and cancer if this objective is to reached.

Objective g. By 1990, at least 85 percent of the adult population should be aware of the special risk of developing and worsening chronic obstructive lung disease, including bronchitis and emphysema, among smokers.

Baseline Baseline data were not available.

Status Provisional data from the 1985 National Health Promotion and Disease Prevention Supplement to the National Health Interview Survey indicate that 86 percent of the adult population is aware that smoking increases a person's chance of developing bronchitis and 91 percent is aware that smoking increases a person's chance of developing emphysema.

Comment Based on the provisional data from the National Health Interview Survey, it appears that this objective has already been met. If this achievement is to be sustained through the end of this decade, Federal, State, and local governments, voluntary organizations, and health professionals must continue their efforts to develop and disseminate information informing the general public, especially those at risk, about the relationship between smoking and chronic obstructive lung disease. The rotating warning messages from the Surgeon General that have been appearing on cigarette packages and in advertising since October 1985 are one mechanism for continuing to alert the general public about the link between smoking and chronic disease. One of the warning labels states: "Smoking causes lung cancer, heart disease, emphysema, and may complicate pregnancy." This is an important message, as smoking is the single most important cause of chronic obstructive lung disease. Eighty to 90 percent of all emphysema and chronic bronchitis deaths each year are attributable to smoking, resulting in the loss of more than 50,000 lives.

Objective h. By 1990, at least 85 percent of women should be aware of the special health risks for women who smoke, including the effect on outcomes of pregnancy and the excess risk of cardiovascular disease with oral contraceptive use.

Baseline Baseline data were not available.

Status Provisional data from the 1985 National Health Promotion and Disease Prevention Supplement to the Health Interview Survey indicate that:

- 74 percent of adult women believe smoking during pregnancy increases the risk of miscarriage,
- 66 percent of adult women believe smoking during pregnancy increases the risk for stillbirth,
- 75 percent of adult women believe smoking during pregnancy increases the risk for premature birth,

- 85 percent of adult women believe smoking during pregnancy increases the risk for low birth weight of the newborn, and
- 73 percent of adult women believe that if a woman takes birth control pills and smokes she is more likely to have a stroke than if she does not smoke.

Comment

Based on provisional data from the National Health Interview Survey, it appears likely that this objective will be met. Even though the data suggest a substantial number of women are generally aware that smoking during pregnancy increases a woman's risk for miscarriage, stillbirth, premature birth, or delivery of a baby who is small or underweight, many women remain unaware of this risk. Women who smoke are either unaware of the risk or do not act on their knowledge. Data from NCHS show that more than one-third of married women under 25 years of age and about one-quarter of married women over 25 years of age smoke at the beginning of their pregnancy. (Married women account for about 80 percent of pregnancies each year.) According to the Institute of Medicine, despite the increased risk for an adverse pregnancy outcome, only 20 to 25 percent of women who smoke at the beginning of their pregnancy will quit on their own sometime during the nine months. Aggressive intervention programs can encourage another 30 percent to stop.

Both the Government and the private sector are increasing their efforts to inform health care providers and the general public, especially women in the child-bearing years, of the hazards associated with smoking during pregnancy. Progress in increasing knowledge of the relationship between smoking and the use of oral contraceptives depends almost exclusively on increasing the medical profession's knowledge and appreciation of the hazards involved, in addition to an effective public information program. FDA now requires a first-prescription warning about the relationship between oral contraceptives and cigarette smoking. Patient education by the prescribing physician and pharmacist is also needed.

Objective i.

By 1990, at least 65 percent of 12 year olds should be able to identify smoking cigarettes with increased risks of serious disease of the heart and lungs.

Baseline

Baseline data were unavailable.

Status

There are no national data available to measure, either directly or indirectly, progress toward attainment of this objective.

Comment

Since no data are available, it is not possible to evaluate progress toward achieving this objective. The most important single determinant of whether or not a young person takes up smoking appears to be his or her awareness of the health hazards of smoking. The decline in regular smoking by high school seniors suggests this group's understanding of the health effects of smoking has increased over the past eight years. If this change is true for younger age groups as well, it is very possible that considerable progress is being made toward achieving this objective.

School-based health education programs are essential if this objective is to be realized. States and localities also need to consider a move to more strictly enforcing laws which prohibit the sale to and use of cigarettes by minors.

IMPROVEMENT OF SERVICES

Objective j. By 1990, at least 35 percent of all workers should be offered employer/employee sponsored or supported smoking cessation programs either at the worksite or in the community.

Baseline In 1979, 15 percent of U.S. business firms had programs to encourage or assist their employees in smoking cessation.

Status There are no national data available to measure, either directly or indirectly, the percentage of all workers who have access through their place of employment to a smoking cessation program.

A 1985 study, the National Survey of Worksite Health Promotion Activities, collected information on health promotion activities in worksites with 50 or more employees. The study sample reflects the work environment for roughly 58 percent of the U.S. workforce. Preliminary data analyses show that, of those worksites surveyed, approximately 38 percent offer employees some form of smoking cessation program. The range of worksite programs includes classes, materials, and company policies restricting smoking.

Comment Since no national data are available on the percentage of the entire U.S. workforce with access to smoking cessation programs, it is not possible to evaluate progress toward achieving this objective. During the past few years, however, there has been a dramatic increase in employer and employee willingness to address smoking as a health risk factor through worksite sponsored smoking cessation programs.

Preliminary data from the National Survey of Worksite Health Promotion Activities indicate that about 38 percent of worksites with 50 or more employees offer some form of smoking cessation program. Of those worksites offering a smoking-cessation program, 61 percent provide their employees with information describing the harmful effects of smoking, 18 percent offer individual counseling on smoking cessation strategies, 25 percent offer employees group smoking cessation classes, 55 percent provide employees with self-help materials, and 27 percent sponsor stop smoking contests or other forms of employee incentive programs. The preliminary data from the survey also indicate that roughly 27 percent of the worksites surveyed have a formal policy restricting smoking within the work environment.

Smoking costs the public over $50 billion in lost productivity and medical costs, much of which is borne directly by employers. Research shows that smokers have twice as many job-related accidents as nonsmokers, are 50 percent more likely to be hospitalized than those who do not smoke, and have 50 percent higher absentee rates than nonsmokers.

Smoking cessation policies and programs, when successfully implemented, can result in a number of benefits to both the employee and employer. The principal benefits for the employee are improved health and reduced risk of disease and disability. Employers who have eliminated or curtailed smoking at the worksite indicate that absenteeism rates decrease, productivity improves, direct health costs to the company appear to decline, and the cost of plant and equipment maintenance is reduced.

Both the public and private sectors need to strengthen their efforts in support of employer/employee sponsored smoking cessation programs if this objective is to be reached. Measures that will contribute to the success of this effort include

improvement in the range and quality of resources available to employers and employees interested in developing increased public awareness of passive smoke as a worksite health issue, greater labor-management involvement in planning for smoking cessation programs, and increased understanding of the benefits and effectiveness of smoking control efforts.

Objective k. By 1985, tar, nicotine and carbon monoxide yields should be prominently displayed on each cigarette package and promotional material.

Baseline At the time this objective was formulated, cigarette companies were not required to display carbon monoxide yields on cigarette packages or promotional materials.

Status By 1985, cigarette companies were required to list tar and nicotine yields in all advertising but were not required to display either value on cigarette packages. At the same time, cigarette companies were not required to, nor did they voluntarily, display carbon monoxide yields on either packages or promotional materials.

Comment This objective was not met by 1985. Cigarette companies, through an agreement with the Federal Trade Commission, are required to list tar and nicotine yields in all advertising, but they are given the option of listing or not listing these yields on their packages. Companies typically choose to list tar and nicotine yields only in the case of the lower-yield brands. The Federal Trade Commission tests cigarette brands for carbon monoxide yields, but cigarette companies are not required to list these values on packages or use them in advertising. Both the Federal Trade Commission and the Department of Health and Human Services have called for legislation that would make the listing of tar, nicotine and carbon monoxide yields mandatory. Without such legislation, it is unlikely that this objective will be met any time in the future.

Objective l. By 1985, the present cigarette warning should be strengthened to increase its visibility and impact, and to give the consumer additional needed information on the specific multiple health risks of smoking. Special consideration should be given to rotational warnings and to identification of special vulnerable groups.

Baseline In 1979, cigarette packages and advertising materials contained one general warning message.

Status On October 12, 1984, the President signed into law the Comprehensive Smoking Education Act of 1984, requiring that the single health warning be replaced with four rotating labels on cigarette packages and in cigarette advertising.

Comment This objective has been met. The new warning messages are rotational and provide the consumer with information on the multiple health risks of smoking. The addition of these new labels to cigarette packages and materials should serve to strengthen the impact these messages have on public attitudes toward smoking

as well as public awareness of smoking as the single most preventive cause of death in our society today.

The four warning messages are:

- SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, and May Complicate Pregnancy;
- SURGEON GENERAL'S WARNING: Quitting Smoking Now Greatly Reduces Serious Risk to Your Health;
- SURGEON GENERAL'S WARNING: Smoking By Pregnant Women May Result in Fetal Injury, Premature Birth, And Low Birth Weight;
- SURGEON GENERAL'S WARNING: Cigarette Smoke Contains Carbon Monoxide.

Objective m. By 1990, laws should exist in all 50 States and jurisdictions prohibiting smoking in enclosed public places, and establishing separate smoking areas at work and in dining establishments.

Baseline In 1978, 31 States had some form of smoking restriction law.

Status By 1985, 41 States and the District of Columbia had passed legislation limiting or restricting smoking in one or more enclosed public places. For example:

- 32 States and the District of Columbia limit or restrict smoking while using public transportation;
- 28 States limit or restrict smoking in indoor cultural and recreational facilities;
- 20 States and the District of Columbia limit or restrict smoking in public buildings;
- 19 States and the District of Columbia limit or restrict smoking in retail outlets;
- 17 States limit or restrict smoking in offices, workplaces, and public meeting rooms; and,
- 16 States and the District of Columbia place some restriction on smoking in restaurants.

Comment Based on progress to date, it appears likely that most States and jurisdictions will have legislation to protect the nonsmoking public in place by the year 1990, but that the nature and scope of these laws will vary widely. It is not likely that all States and jurisdictions will extend protection to the workplace or require separate seating in restaurants.

An ever increasing number of State and local governments are expressing interest in protecting the rights of the nonsmoker. This is due, in large part, to the work of private sector organizations, citizen groups and coalitions. These groups, united by their common concern for a smoke-free environment, have compiled a considerable body of medical evidence to justify their position and support the passage of reasonable regulations prohibiting smoking in enclosed public places. Scientific studies indicate:

- Nonsmokers who are exposed to tobacco smoke in the air absorb nicotine, carbon monoxide and other constituents of tobacco smoke as do smokers, although, as would be expected, in smaller amounts.

- The constituents of cigarette smoke include substances which are pharmacologically active, toxic, mutagenic, carcinogenic, and antigenic. There is no safe level of exposure for some of these substances.
- Contaminants from tobacco smoke in homes, offices, other worksites and certain public places are capable of reaching levels which exceed those permitted under environmental and occupational health standards.
- Involuntary smoking is highly annoying and physically irritating to many people, can exacerbate the symptoms of asthma, chronic bronchitis and angina pectoris.
- The children of smoking parents have an increased prevalence of reported respiratory symptoms, increased frequency of bronchitis and pneumonia early in life, and measurable but small differences in test of pulmonary function when compared with children of nonsmoking parents.
- Exposure to tobacco smoke in the air may cause disease, including lung cancer, in otherwise healthy adults.

Public and private sector efforts to educate the public about the hazards posed by cigarette smoke are an important precursor to the passage of laws prohibiting smoking in enclosed public places and need to be heightened if this objective is to be achieved.

Objective n. By 1990, major health and life insurers should be offering differential insurance premiums to smokers and nonsmokers.

Baseline In 1979, approximately 30 major companies were offering differential premiums.

Status Virtually all major life insurance companies now offer differential life insurance premiums to smokers and nonsmokers. Insurers offering group life and health policies are beginning to move into the area.

Comment Based on progress to date, it appears this objective will be met, particularly in the case of individual life insurance policies. Data coming from the insurance industry itself have provided overwhelming actuarial support for differential premiums on individual life insurance policies. Competitive forces within the insurance industry coupled with increased consumer and employer demand for differential rates, should provide the impetus necessary to reach this objective.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective o. By 1985, insurance companies should have collected, reviewed, and made public their actuarial experience on the differential life experience and hospitalization utilization by specific cause among smokers and nonsmokers, by sex.

Baseline No baseline statement was made.

Status A 1980 report by Crowell and Hirst, published in *Transactions of the Society of Actuaries*, established the actuarial basis for differential pricing of insurance. The Metropolitan Life Insurance Company is studying differential hospitalization experience and will publish the results upon completion.

Comment This objective has been achieved as adequate information is now available to justify differential insurance rates for smokers and nonsmokers.

Objective p. By 1990, continuing epidemiological research should have delineated the unanswered research questions regarding low yield cigarettes, and preliminary partial answers to these should have been generated by research efforts.

Baseline No baseline statement was made.

Status A number of researchers are currently investigating the health significance attendant on the increased use of filter tipped cigarettes in this country as well as the continuing decline in the sales-weighted average tar and nicotine yield per cigarette.

Comment Based on progress to date, it appears likely that this objective will be met. By 1990, the public health community should have access to new evidence as to the health significance of low yield cigarettes, particularly as to the smoker's ability to manipulate his or her intake of smoke ingredients. As more information becomes available, increased emphasis should be placed on studies looking at the relative risk the lower yield cigarette poses for special population groups, such as pregnant women and their babies.

Objective q. By 1990, in addition to biomedical hazard surveillance, continuing examination of the changing tobacco product, and the sociologic phenomena resulting from those changes should have been accomplished.

Baseline No baseline statement was made other than the reference to biomedical hazard surveillance in the objective statement itself.

Status A broad array of activities in support of this objective are ongoing.

Comment Numerous public and private sector activities that fulfill the intent of this objective are now in place, and will continue into the 1990s. Increased public awareness of the dangers of smoking is a direct outgrowth of these activities. The pattern of cigarette product choice has shifted dramatically since the 1950s in response to increased awareness of the health hazards from smoking and, in part, in response to cigarette company advertising campaigns.

The use of filter-tipped cigarettes increased from approximately one percent in 1950 to more than 90 percent in 1983. The proportion of lower tar cigarettes (15

mg. or less) consumed in the United States has risen from two percent in 1967 to over 60 percent in 1983. Since 1969 the sales-weighted average of delivery of tar per cigarette has decreased by more than 30 percent to its current level of less than 14 mg. in 1981 and nicotine content has decreased by 26 percent.

The prevalence of smoking in the United States has continued to decline, although there is evidence that average number of cigarettes smoked per day by those adults who continue to smoke has increased. Data show that women smokers are more likely to use lower tar cigarettes than men, and whites are more likely to use them than are blacks.

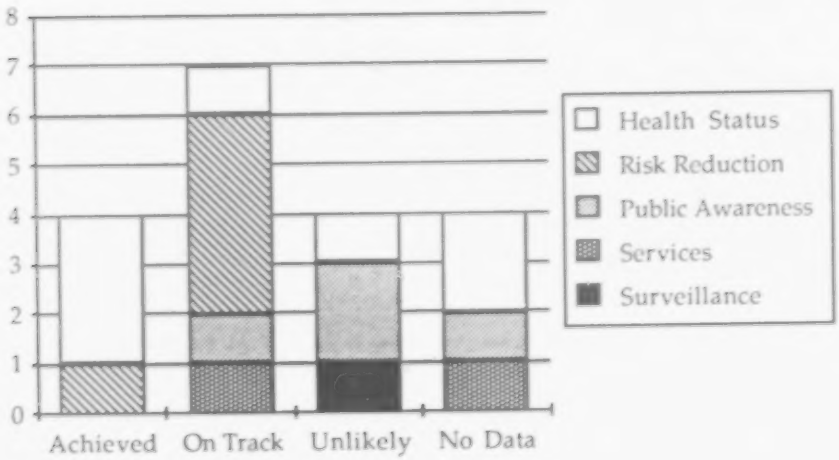
Regardless of sex, white smokers use a lower yield cigarette almost twice as frequently as blacks of the same sex. While black smokers choose cigarettes with higher tar levels in greater proportion to whites, they tend to smoke fewer cigarettes per day.

The use of high tar cigarettes is greater among older age groups. The use of the lower yield cigarette products is more likely the higher a person's income and education level. Approximately 34 percent of adolescent smokers, aged 12 to 18 years, used lower yield cigarettes in 1979 compared with less than seven percent in 1974. Data show that adolescent boys and girls smoke cigarettes of approximately the same level of tar and nicotine.

Section L MISUSE OF ALCOHOL AND DRUGS

Alcohol and drugs are implicated in an array of adverse health and social problems. They play causal or contributing roles in deaths due to accident, homicide and suicide as well as diseases such as cirrhosis and cancer. They pose particular risks among adolescents, young adults, pregnant women, and the elderly. Their appropriate use and control involve law enforcement agencies, but almost all of the consequences of their misuse, whether legal or illegal, fall within the arena of public health concern. The midcourse review of the 19 objectives that fall in this priority area discloses several major achievements in health status such as a decline in alcohol-related motor vehicle accident fatalities and a reduction in the death rate from cirrhosis. Risk reduction objectives appear to be achievable, based on declining alcohol consumption rates and a similar trend for marijuana use by young people. Overall, while this review depicts a heartening level of progress in an area of disease prevention and health promotion where individual behavior has significant social consequences, broad and seemingly intractable challenges remain that will require participation from various social sectors.

Status of Misuse of Alcohol & Drugs (19 Objectives)

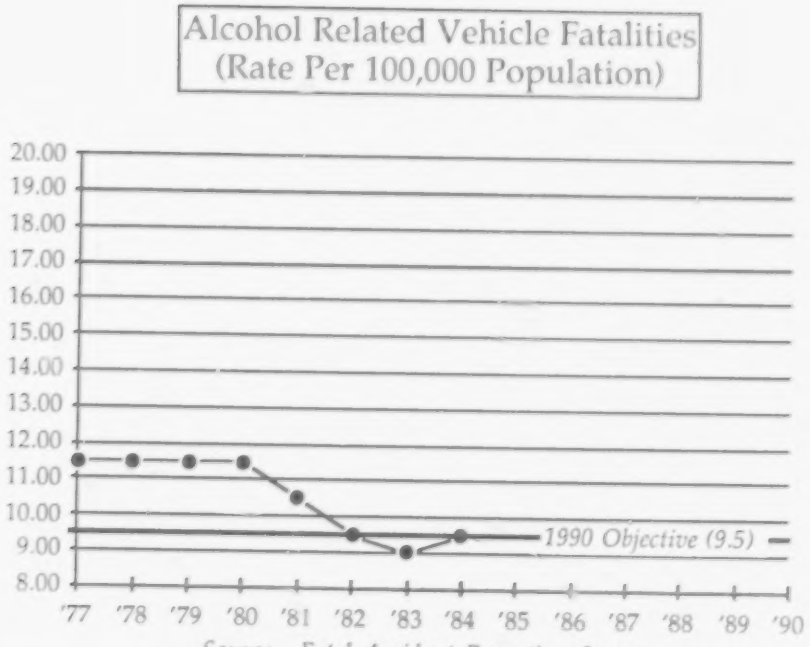


IMPROVEMENT OF HEALTH STATUS

Objective a. By 1990, fatalities from all alcohol-related motor vehicle accidents should be reduced to less than 9.5 per 100,000 population per year. (This objective has been revised from its original form addressing only those fatalities involving drivers with blood alcohol levels of .10 percent or more to include all alcohol-related fatalities. This revision is made possible because of the availability of the Fatal Accident Reporting System operated by the National Highway Traffic Safety Administration.)

Baseline In 1977, there were 11.5 fatalities per 100,000 population.

Status In 1984, there were 9.5 fatalities per 100,000 population.



Source: Fatal Accident Reporting System, National Highway Traffic Safety Administration

Comment Based on progress to date, it is likely that this objective will be met, although there was a slight increase in alcohol-related motor vehicle fatalities in 1984, from the low of 9.0 per 100,000 reported in 1983. Alcohol-related deaths remained fairly constant at 11.5 deaths per 100,000 population from 1977-1981, but in 1982 rates began to decline making the beginning of what appears to be a real trend toward fewer alcohol-related deaths. Many factors are responsible for this achievement.

Community groups such as Mothers Against Driving Drunk (MADD), Students Against Drunk Driving (SADD), and Remove Intoxicated Drivers (RID) have brought the issue of alcohol-related deaths on the road to public attention. Legal actions have also helped address this problem. Sobriety check-points established in States across the country intercept drivers under the influence of alcohol and

driving while intoxicated. Community action groups have succeeded in achieving more severe penalties for alcohol-impaired driving as well as swifter and more severe adjudication for these offenses. Research indicates that economic factors influence per capita consumption of alcohol which in turn influences alcohol-related traffic accidents. With economic improvements, consumption can be expected to rise and alcohol-related fatalities may increase.

To continue progress related to this objective, several steps are recommended. The public's perception of being apprehended if they drink and drive must increase and remain high. Awareness efforts should also inform the public about the many risks involved when one drives after drinking alcohol. The public, law enforcement officers, and criminal justice authorities also need to be made aware that some impaired drivers are problem drinkers and alcoholics. Severe fines and jail sentences have not proven to be effective countermeasures for these offenders. Active community-based detection and intervention programs are necessary if these individuals are to be deterred from becoming repeat offenders.

Because no one intervention strategy works in all situations, a variety of methods need to be tested and identified in order that effective models are readily available for use at the local level. Maintaining the progress achieved thus far, and at the same time working to achieve further reductions in alcohol-related motor vehicle fatalities also requires the continued involvement of community groups and private sector organizations.

Objective b. By 1990, deaths from other (nonmotor vehicle) accidents indirectly attributable to alcohol use, should be reduced to five per 100,000 population per year.

Baseline In 1975, there were seven fatalities per 100,000 population from other than motor vehicle-related accidents indirectly attributable to the use of alcohol.

Status In 1983, there were 4.3 fatalities per 100,000 population.

Comment Based on progress to date, the revised objective has been met. Several factors have contributed to the achievement of this objective. As the American public has become increasingly aware of the risk of combining alcohol and driving, the momentum created by this widespread public concern may have helped increase attention on alcohol's role in other non-motor vehicle-related deaths and injuries. Studies and recommendations by the National Transportation Safety Board have highlighted awareness of the risk of alcohol-related deaths in nonhighway (marine, air, and rail) transportation areas. Legislation has been passed by some States making it illegal to operate a boat while under the influence of alcohol. The U.S. Coast Guard has incorporated an alcohol component into its safe boating courses. (In 1985, the National Safe Boating Council designated the year to fight against alcohol-impaired boating). To continue tracking this objective, it would be helpful to conduct more research. Since the statistics related to alcohol and fires, drownings, home and recreational deaths and injuries, as well occupational injuries, are derived from many sources, the development of good, ongoing measures is difficult. Currently, efforts are underway to establish a system to measure the prevalence of and characteristics associated with these injuries and deaths. Efforts to continue progress in regard to this objective include: establishing collaborative relationships between Federal and State agencies, conducting data collection activities to gather more alcohol/injury information, and dissemi-

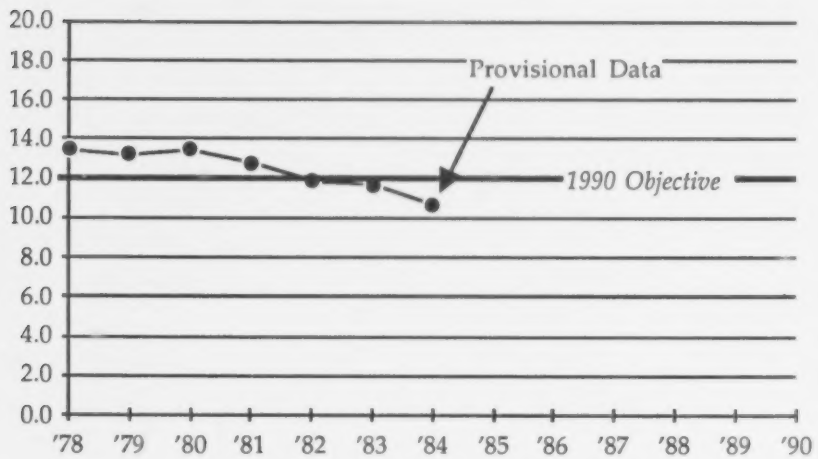
nating safety-related information to the public. An appropriate amendment of this objective would eliminate alcohol-related suicides which were included in the baseline data of seven fatalities per 100,000 population. Such an amendment would suggest a lowering of the 1990 target to perhaps four fatalities per 100,000 population.

Objective c. By 1990, the cirrhosis mortality rate should be reduced to 12 per 100,000 per year.

Baseline In 1978, the cirrhosis mortality rate was 13.5 per 100,000.

Status In 1984, the cirrhosis mortality rate was 10.7 per 100,000. (Provisional Data).

Deaths Caused by Cirrhosis & Chronic Liver Disease
(Rate Per 100,000 Population)



Source: National Center for Health Statistics

Comment Based on progress to date, this objective has been achieved. Cirrhosis of the liver, which is largely attributable to heavy alcohol consumption, was the 11th leading cause of death in 1983. After staying almost constant from 1978 to 1980, the cirrhosis mortality rate steadily declined from 1981 to 1984. While the data for 1983-1984 are provisional, it appears that such a strong declining trend will be validated when the data are final. However, cirrhosis rates for nonwhites are substantially above those for whites. In 1979, for example, age-adjusted rates were 21.1 per 100,000 for nonwhites compared to 11.1 per 100,000 for whites. It is unlikely that the rate for nonwhites will drop to 12 per 100,000 by 1990.

This objective is principally designed to track cirrhosis mortality related to alcohol consumption. While one study reported that alcohol was mentioned as a contrib-

uting factor on an average of 40 percent of all death certificates that reported cirrhosis as the underlying cause of death, many experts estimate that alcohol abuse is associated with closer to 90-95 percent of cirrhosis deaths, and they use cirrhosis mortality as an indicator of abusive alcohol consumption patterns. Recent literature has included several reports of the decline in cirrhosis mortality. Given that alcoholic death rates are strongly correlated with consumption rates, as per capita consumption has dropped, so have cirrhosis death rates.

To achieve further progress related to this objective, efforts to reduce heavy and other abusive drinking patterns should continue. Research into both the underlying mechanisms and preventive and treatment interventions will continue, with attention to high risk audiences. Unless per capita consumption of alcohol rebounds, there is no indication at this time that the cirrhosis mortality rate will rise above the 1990 goal of 12 per 100,000 population.

RISK REDUCTION

Objective d. By 1990, the incidence of infants born with the Fetal Alcohol Syndrome should be reduced by 25 percent.

Baseline In 1977, the rate for Fetal Alcohol Syndrome was one per 2,000 births, or approximately 1,650 cases.

Status National data on the current status are not available. The baseline measure for this objective is limited in value, and no dependable alternate national measures are available. The only data available are from the Birth Defects Monitoring Program at CDC, a voluntary reporting system which monitors approximately 25 percent of all births. These data suggest the rate for Fetal Alcohol Syndrome in 1985 was 1.5 to 2.0 per 10,000 births.

Comment Because there are no valid baseline or current national data to measure this objective, it is not possible to predict whether it will be met. The National Hospital Discharge Survey, the source of the baseline data, is not adequate for establishing a national objective. Estimation of the incidence of fetal alcohol syndrome in the past has been extremely difficult, in part because there was no specific International Classification of Diseases (ICD) code for it. Without such a code, it is difficult to obtain frequencies of incidence from the various national surveys, most of which rely upon the ICD codes for reporting purposes. Therefore, past estimates were usually based upon case studies which produce dramatically varying estimates (e.g., from one per 600 to one per 5,000). The rate cited as the baseline figure is such a rate.

To track progress toward achieving this objective, new data sources should be developed. Both the Centers for Disease Control and the National Institute on Alcohol Abuse and Alcoholism are working to establish more useful measures of incidence of fetal alcohol syndrome. Obtaining a comparable figure for 1990 may be made easier because of the assignment of a specific code to fetal alcohol syndrome for inclusion in the ICD-9. This code will enable improved collection of

incidence data on a national basis. However, as research and information on fetal alcohol syndrome increase there may be an increase in reporting, especially now that a specific code is available. It may turn out that current estimates are extremely conservative, therefore reducing the likelihood of attaining the 1990 objective.

To reduce the incidence of fetal alcohol syndrome, public and professional prevention programs have been developed. Public awareness campaigns are warning women about the dangers of alcohol consumption during pregnancy. For example, the "Healthy Mothers, Healthy Babies Coalition" at the national, State and local levels have worked to build awareness among women in child bearing years and health professionals about the importance of healthful lifestyles, including alcohol abstinence during pregnancy. The Dietary Guidelines of the U.S. Departments of Health and Human Services and Agriculture emphasize the risk of alcohol consumption, and advise against it during pregnancy. Several cities have adopted measures requiring point-of-sale warning signs advising that alcohol consumption during pregnancy may lead to fetal alcohol syndrome.

The medical literature on fetal alcohol syndrome has increased substantially during the past five years. Many curricula for medical and other health professions schools now include fetal alcohol syndrome related information. Professional health care organizations are now advising physicians and other practitioners that the safest choice for pregnant women is not to consume alcohol.

To track this objective, useful measures of incidence are needed. To help achieve the objective itself, public and professional education campaigns about fetal alcohol syndrome and the dangers of consuming alcohol while pregnant should continue.

Objective e. By 1990, drug-related mortality should be reduced to 2 per 100,000 per year.

Baseline In 1978, the rate for other drug-related mortality was about 2.7 per 100,000. (National Hospital Discharge Survey and the National Mortality Statistics, compiled by the National Center for Health Statistics).

Note: Drug-related mortality excludes deaths caused by alcohol. The definition, however, is affected by a revision in the International Classification of Diseases. The 1978-1981 data were revised.

Status In 1984, as a proxy measure, Drug Abuse Warning Network (DAWN) data indicated that there were 3,539 drug-related deaths reported by 26 metropolitan areas in the U.S. This figure translates to a rate of approximately 1.6 per 100,000 population, excluding New York City.

Comment While "drug-related mortality" is not particularly difficult to track using National Center for Health Statistics (NCHS) data, there is some question as to the reliability of these statistics due to the lack of standardized terminology surrounding the mortality statute. The National Institute on Drug Abuse (NIDA), on the other hand, already has in place a network of medical examiners to gauge "drug-induced mortality" via its Drug Abuse Warning Network (DAWN). DAWN is a morbidity and mortality information system which includes hospital emergency room reports of drug episodes and drug mentions, and medical examiner reports of drug mentions involving deceased individuals in 26 major cities across the United States. Thus DAWN is really a proxy measure for drug-induced deaths in

the total population. Nevertheless, even with this deficiency, DAWN may be used to show the major contributions of heroin, cocaine, and use-in-combination with alcohol to the mortality rate for drug use. The DAWN data would seem to indicate that drug-related deaths may be increasing. A consistent reporting panel of medical examiners could be used to establish sounder baseline and trend data.

In addition, and equally important, highest priority should be given to reducing the mortality rate of adolescents, the only age group for which significant gains have not been achieved in the past five years. The major causes of death for this group are suicide and violent and accidental trauma, which are highly correlated with alcohol and drug abuse. To achieve this objective, National awareness of the possible relationship between drug misuse and the adolescent mortality problem needs to be raised.

Objective f. By 1990, adverse reactions from medical drug use that are sufficiently severe to require hospital admission should be reduced to 25 percent fewer such admissions per year.

Baseline In 1979, estimates ranged from approximately 105,000 to 350,000 admissions per year.

Status No current data are available.

Comment Due to a lack of data, it is not possible to predict whether this objective will be achieved. The baseline data were estimates, and a data collection system related to this objective has not been created.

FDA maintains a surveillance system to monitor adverse reactions to human drugs, but the system is not designed to provide the kind of information needed to assess progress toward this objective. The FDA surveillance system contains all adverse reactions related to the use of medical drugs, not just those requiring admission to a hospital, and it is not possible to separate those requiring hospitalization from those which are treated in another manner. Beyond this, the system is tailored to detect adverse reactions related to new drug products and not to determine trends over time. In addition, FDA estimates that only a small fraction, between one and 10 percent, of all adverse drug reactions are included in the system. Other data systems also contain some information on special population groups, such as Medicaid recipients, but these data are not indicative of the general population.

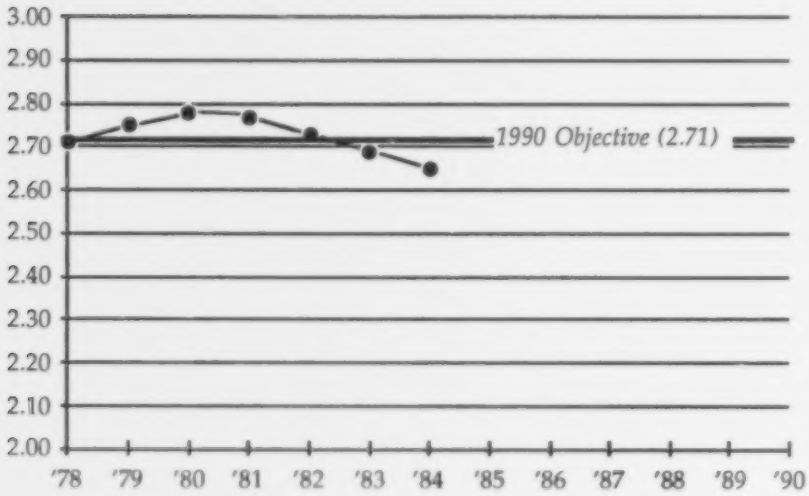
While the intent of this objective is laudable, it is also important to note that it does not take into account the fact that a certain portion of adverse drug reactions leading to hospitalization are not necessarily preventable but are the consequence of a medically acceptable risk-benefit choice, such as that encountered when trying to closely regulate serum insulin levels in a severely diabetic individual. More information is needed about the nature and magnitude of preventable drug reactions before efforts to realize the intent of this objective can be successfully implemented.

Objective g. By 1990, per capita consumption of alcohol should not exceed current levels.

Baseline In 1978, the rate was 2.71 gallons of absolute alcohol per person aged 14 and over. (This baseline measure has been adjusted from "about 2.82 gallons" originally noted to reflect late reporting from States.)

Status In 1983, the rate was 2.69 gallons of absolute alcohol per person aged 14 and over.

Gallons of Alcohol Consumed
(Per Person Age 14 and Over)



Source: National Institute on Alcohol Abuse and Alcoholism

Comment Based on the progress to date, this objective is being achieved. Apparent per capita alcohol consumption increased slightly from 1978 to 1981 and then decreased slightly in 1982, 1983, and 1984.

Alcoholic beverages are price sensitive. Relative prices of alcoholic beverages have dropped, especially because taxes generally have not been increased. The increase in Federal excise on distilled spirits in October 1985 is a notable exception.

During economic recession, per capita consumption of alcohol usually decreases. Therefore, the downward trend to lower consumption is probably due in part to economic conditions. As the economy improves, per capita consumption may well increase.

Alcoholic beverage producers are increasing their promotional budgets and are extending their product lines to appeal to both changing tastes and special market segments in order to retain profitability. The competition is with other brands, other alcoholic beverage types, and with other beverage types, such as soft drinks, milk, etc.

Many individuals and organizations are very active in their efforts to reduce problem drinking, and this may have had an effect on per capita consumption. The

national efforts to raise the minimum purchase age to 21 has been effective in an increasing number of States. Some States have enacted dramshop legislation which makes the server responsible if a patron is involved in an accident after having consumed too much alcohol. There is also a move in some States to ban special low drink prices such as "happy hours" and "two for one" specials. Congress recently enacted legislation which modestly raises the excise tax on distilled spirits. Further, the increasing health consciousness of adults has led to a shift towards consumption of lower alcohol content beverages and less drinking overall. As the "baby boom" generation ages out of the heavier drinking age groups, there may be a resultant drop in per capita consumption in the 1990's.

The alcohol beverage industry disputes the relationship between per capita consumption and the rate of alcohol problems. However, an overall decline in consumption correlates with lowered cirrhosis rates and reductions in motor vehicle crashes. In addition, the National Bureau of Economic Research indicates that there is a direct relationship between price levels and per capita consumption and various alcohol problems including cirrhosis, alcoholism, alcohol-impaired driving and teenage drinking. Such research strongly suggests that higher taxes on alcoholic beverages would decrease consumption and resulting alcohol-related problems.

Objective h. By 1990, the proportion of adolescents 12 to 17 years old who abstain from using alcohol or other drugs should not fall below 1977 levels.

Baseline In 1977, the proportion who abstained from alcohol was 69 percent, and for other drugs, the proportion ranged from 83.9 percent for marijuana to 99.9 percent for heroin. (The original baseline of 46 percent for alcohol has been changed to 69 percent to reflect more recent data on alcohol abstention from the National Household Survey.)

NOTE: A person is defined as abstaining from alcohol or other drugs if he or she has never used the substance or if the last use of the substance was more than one month earlier.

Status In 1982, the proportion of alcohol abstainers increased to 73.1 percent and marijuana abstainers to 88.5 percent, while the proportion of heroin abstainers remained about the same, at more than 99.5 percent.

Comment Based on progress to date, this objective is being achieved. The 1982 NIDA Household and the 1984 High School Surveys indicate that the levels for overall drug use, including alcohol, continue to decline among youth. Nevertheless, the rates still remain alarmingly high, due to an ever-lowering age of first use and use of alcohol among high school students.

The 1982 National Survey on Drug Abuse results are sufficient for reporting national prevalence but, due to sample size, are inadequate for making valid inferences about subpopulations. Population projections indicate that the percentage of ethnic minority youth/adolescents, especially among Blacks and Hispanics, will increase by 1990 while the overall proportion of youth, 12-17, will decline for the Nation as a whole. In order to develop proper subpopulation inferences, the 1985 National Survey on Drug Abuse will oversample for Blacks and Hispanics. Successful drug abuse prevention efforts among ethnic minority populations

may then be developed utilizing a set of objectives and appropriate strategies focused specifically upon these groups.

Several factors may have contributed to an increase in youth abstinence from alcohol, and perhaps other drugs. More communities and schools today are conducting alcohol and drug education programs for youth. Recent Federal legislation intended to provide incentives to States that establish 21 as the legal drinking age, may have increased abstention for 12 to 17 year olds. Many States are advocating tougher enforcement of minimum purchase age, and, thus, it may now be more difficult for youth to buy alcoholic beverages. Some organizations are now advocating that broadcast alcohol beverage advertising time be eliminated or that time for public service messages on the health hazards of alcohol consumption be required.

The use of alcohol among adolescents is a complex issue. Several factors may influence youth to consume alcohol. Advertising of alcoholic beverages and programming portrayal of alcohol on radio and television may encourage drinking. The negative effects of alcohol consumption are never shown on advertisements and are seldom portrayed in television programs. Another pervasive influence on youth is the acceptance of drinking by parents and others. Also, intense peer pressure to drink is another major source of influence.

To continue progress related to this objective, public education efforts in the schools and communities should persist. Legal actions, such as prohibiting the sale of alcoholic beverages to individuals under the age of 21, may also be effective strategies.

Objective i.

By 1990, the proportion of adolescents 14 to 17 years old who report acute drinking-related problems during the past year should be reduced to below 17 percent.

NOTE: Acute drinking-related problems have been defined as problems such as episodes of drunkeness, driving while intoxicated, or drinking-related problems with school authorities.

Baseline

In 1978, the proportion who reported such problems was estimated to be 19 percent based on 1974 survey data.

Status

A national survey on youth alcohol abuse corresponding to the 1974 baseline has not been conducted. However, a proxy measure, the National Institute on Drug Abuse (NIDA) High School Senior Survey, provides data on the percentage of students who report having episodes of drunkeness. The survey shows an increase from 37 percent of high school students in 1975 to 41 percent in 1982 who engage in occasional binge drinking, which is defined as consuming five or more drinks in a row on at least one occasion during the past two weeks. Other national and statewide surveys are consistent with these results. (National Institute on Alcohol Abuse and Alcoholism).

Comment

Based on proxy data, it appears unlikely that this objective will be met. The acute drinking related problem of binge drinking is increasing according to recent surveys of high school seniors. Data are unavailable for driving while intoxicated and drinking-related problems with school authorities.

Factors contributing to acute drinking-related problems include peer pressure and the promotion of alcohol consumption through broadcast and print media.

To help overcome the problem, public education prevention and intervention programs aimed at young adolescents are necessary. NIAAA will launch a program in 1987, and many organizations at State and community levels are active in similar efforts to reduce acute drinking-related problems among adolescents. The National Council on Alcoholism is also launching a national campaign, carefully coordinated with other existing and planned public education initiatives, to reduce alcohol-related problems among youth.

Objective j. By 1990, the proportion of problem drinkers among adults aged 18 and over should be reduced to eight percent.

Baseline In 1979, the proportion of problem drinkers among adults aged 18 and over was about 10 percent.

Status In 1985, the best current estimates, derived from a number of studies, constitute a range from 9.5 to 17.9 million persons age 18 and above who are problem drinkers, which would constitute between five and nine percent of that age group. (NIAAA working paper to be published.)

Comment Based on current estimates, it appears that this objective has been achieved. The difficulties of varying definitions and methods from estimation means certainty about this progress is hard to demonstrate.

A preferable, measurable terminology would use an umbrella term, "alcohol-related problems," and two subordinate terms, "alcohol dependence" and "alcohol-related consequences," which are exhaustive and mutually exclusive. Such terms also have the related advantage of measuring events or episodes, rather than persons, thus removing some of the stigma or blame from alcohol abusers and directing attention to the actual problems.

Data available now suggest that approximately 10.6 million adults 18 and over are alcohol dependent, with another 7.3 million adults experiencing alcohol-related consequences of some kind. Changing demographics are expected to increase the number of dependent persons to 11.4 million by 1995, with no change to the numbers experiencing other alcohol-related consequences.

Based on the change in wording suggested above, different goals might be appropriate for alcohol dependence and alcohol-related consequences. For example, as the baby-boom generation ages, fewer alcohol-related consequences would be expected as large numbers of persons move beyond their heavy drinking years. However, this same cohort becomes more vulnerable to alcohol dependence, which would tend to rise.

Consequently, the objective could be reworded as follows: By 1990, the rate of alcohol-related problems among adults aged 18 and over should be reduced by 20 percent for alcohol dependence (to 4,800 per 100,000) and 20 percent for alcohol-related consequences. (to 3,200 per 100,000) (The 1977 baseline was 6,000 per 100,000 for alcohol dependence, and 4,000 per 100,000 for alcohol related consequences.)

Nationwide efforts are addressing the reduction of problem drinking, through prevention, intervention, and treatment strategies. Public awareness of this need is high. An increasing number of major U.S. firms are offering Employee Assistance Programs. These programs are identifying problem drinkers and referring

them to treatment centers. In addition, new alcohol treatment centers are opening throughout the country. These efforts should be increasingly effective in decreasing problem drinking. Further, as per capita consumption drops, alcohol problems also should be reduced.

Objective k. By 1990, the proportion of young adults 18 to 25 years old reporting frequent use of other drugs should not exceed 1977 levels.

NOTE: "Frequent use of other drugs" means the nonmedical use of any specific drug on five or more days during the previous month.

Baseline In 1977, the proportion of young adults 18 to 25 years old using marijuana was 18.7 percent and less than 1 percent for drugs other than marijuana.

Status In 1982, use of marijuana on five or more days per month by young adults 18-25 years old was 15.7 percent and 2.3 percent for use of other drugs.

Comment The frequent use of marijuana in 1982 decreased from baseline 1977 but the "Other Drug" category was significantly higher than baseline 1977 probably due to the concentration of cocaine users in this age group. This objective, therefore, is only partially being met.

Studies show that the frequency of marijuana use in adolescence as well as early initiation into drug usage tend to increase the incidence of cocaine use in the 18-25 age group. To help prevent this kind of progression, NIDA begain: a) developing education materials targeted at high risk groups of young adults; b) working with the criminal justice system to promote early identification and referral to treatment of offenders who are drug dependent; and c) providing technical assistance and materials to business and industry, State and local programs interested in developing worksite prevention programs.

Objective l. By 1990, the proportion of adolescents 12 to 17 years old reporting frequent use of other drugs should not exceed 1977 levels.

NOTE: "Frequent use of other drugs means the nonmedical use of any specific drug on 5 or more days during the previous month.

Baseline In 1977, the proportion of adolescents 12 to 17 years old reporting frequent use of marijuana was nine percent and less than one percent for drugs other than marijuana.

Status In 1982, frequent use of marijuana by adolescents 12-17 years of age was six percent and use of other drugs was 0.9 percent.

Comment Based on progress to date, it appears likely that this objective will be met. The decline in the use of marijuana by this population and the leveling off in use patterns for other drugs may be a response to successful national drug prevention categories. Abuse indicators point to a continuation of this trend with one caveat.

Drug abuse prevention is a highly volatile endeavor. It is affected as new compounds such as "designer drugs," emerge, surge, and then fall often in response to effective anti-drug campaigns. There is no way to predict this recurring phenomenon, but national demand reduction strategies are developing methods to eventually prevent or slow the process.

PUBLIC AND PROFESSIONAL AWARENESS

Objective m. By 1990, the proportion of women of childbearing age aware of risks associated with pregnancy and drinking, in particular the Fetal Alcohol Syndrome, should be greater than 90 percent.

Baseline In 1979, 73 percent of women of childbearing age were aware of the risks associated with pregnancy and drinking, in particular, the Fetal Alcohol Syndrome.

Status In 1985, 88 percent of females were aware that heavy drinking during pregnancy increased the likelihood of low birth weight and birth defects, while 86 percent were aware of its risks for causing miscarrage and mental retardation in newborns. (National Health Interview Survey, NCHS, 1985).

Comment Based on proxy data available in 1985, it apppears likely that this objective will be met. Additional data on behavioral risk factors, especially smoking and alcohol consumption, are becoming available through the Centers for Disease Control (CDC) Behavioral Risk Factor Surveillance System (BRFS) for nonpregnant women, 18 years of age and older. This data source will be useful in the future for tracking progress on the objective.

The projection that this objective will be achieved is due in large part to a significant number of State and national organizations having educational programs targeted to pregnant women on the subjects of nutrition, smoking, alcohol and drug use; many of these were started during the last several years. Because of current national attention to these topics, it is anticipated that the level of effort will increase, rather than decrease, between 1985 and 1990.

The "Healthy Mothers, Healthy Babies Coalition," with more than 70 national organizations and over 40 State coalitions, is dedicated to fostering educational efforts for pregnant women through collaborative activities and sharing of information and resources. The Coalition has, and should continue to, increase the number of educational activities underway.

In 1981, the Surgeon General issued an Advisory on Alcohol and Pregnancy, to warn that the safest choice is for women not to drink during pregnancy. This message was widely distributed to the public and to health professionals. NIAAA has launched a new public education campaign and continues to distribute materials to consumers and professionals. Community efforts to create awareness of the dangers of drinking while pregnant should continue and also be specifically directed to low income women, Native Americans and heavy drinkers.

Objective n.

By 1990, the proportion of adults who are aware of the added risk of head and neck cancers for people with excessive alcohol consumption should exceed 75 percent.

Baseline

Data were unavailable.

Status

In 1983, 45.6 percent of adults were aware of the added risk of cancers for persons with excessive alcohol consumption. In 1985, 48 percent were aware of such risks. Data on awareness of site-specific cancers linked to excessive alcohol consumption were not available. (Cancer Prevention Awareness Survey, 1983 and 1985, National Cancer Institute).

Comment

Based on the surrogate available data related to cancers in general, it appears unlikely that this objective will be met.

Since alcohol is not a major carcinogen, and other health and safety problems are both more immediate and more prevalent among heavy drinkers, this risk factor receives relatively little attention from either cancer or alcohol-interested scientific, professional and voluntary organizations. Further, public awareness may be superficial and the percentages misleading since a certain proportion of the population believes that exposure to any substance in some measure will cause cancer.

It is estimated that heavy drinkers who consume more than seven drinks a week have a doubled risk of mouth and throat cancers. Smoking and drinking have a synergistic effect; in most studies, the risk of mouth and throat cancers is greater for the combined factors of smoking and drinking than for the simple addition of the two. For example, among those who drink 1.5 ounces of alcohol and smoke 40 or more cigarettes a day, there is a fifteen fold increase in risk of mouth and throat cancers.

To help overcome the problems of head and neck cancers, NIAAA and the National Cancer Institute are cooperating to increase knowledge of the cancer risk of alcohol and smoking. To assure success, both professional and voluntary organizations should be involved in public education programs that disseminate risk factor information.

Head and neck cancers constitute only a small proportion of all cancers, and by itself alcohol is only a moderate risk factor. Combined with smoking, however, this risk greatly increases. This objective could be appropriately revised to reflect this effect.

Objective o.

By 1990, 80 percent of high school seniors should state that they perceive great risk associated with frequent regular cigarette smoking, marijuana use, barbiturate use, or alcohol intoxication.

Note: The definition used for alcohol intoxication is consuming five or more drinks per occasion.

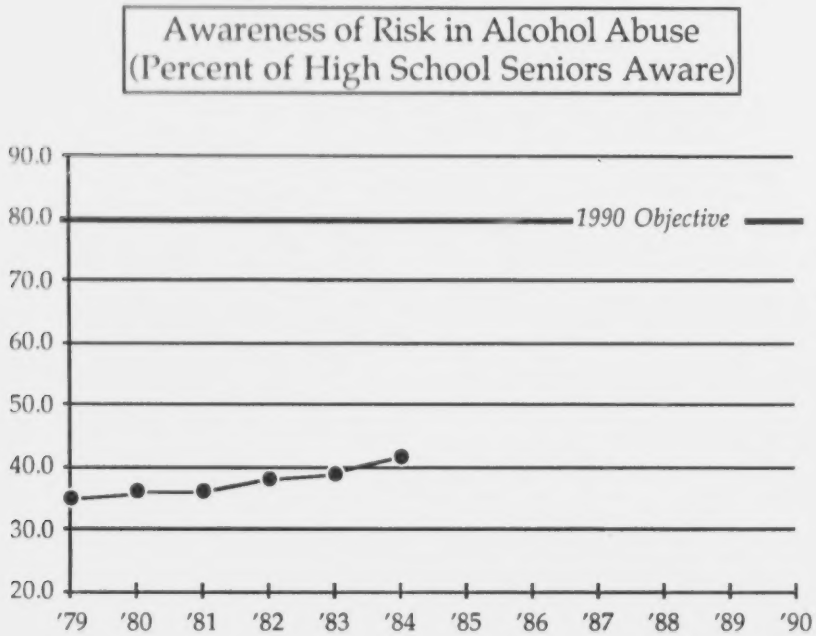
Baseline

In 1979, 63 percent of high school seniors perceived "great risk" to be associated with 1 or 2 packs of cigarettes smoked daily; 42 percent with regular marijuana use; 71.6 percent with regular barbiturate use; and only 35 percent with having five or more drinks per occasion once or twice each weekend.

Status

In 1984, 63.8 percent of high school seniors perceived "great risk" in smoking cigarettes; 66.9 percent with marijuana use; with barbiturate use the percent

dropped to 68.5 percent. In 1984 41.7 percent of seniors viewed the taking of five or more drinks per occasion as risky.



Source: National Institute on Alcohol Abuse and Alcoholism

Comment

Based on progress to date, it appears unlikely that this objective will be achieved. Significant progress has been made, however, in high school seniors' awareness of the risks of using drugs. Awareness of the risk of marijuana use increased from 42 percent in 1979 to 66.9 percent in 1984 and of alcohol use from 35 percent in 1979 to 41.7 percent in 1984. Progress for drugs other than alcohol is greater and the baseline for these drugs was also a higher rate closer to the target. Since alcohol is a widely used, legal drug and societal attitudes toward it are different from the other drugs, youth perceive less potential harm from alcohol, as do adults. Little progress has been made in expanding the awareness of risks related to smoking. This trend is particularly disturbing since the association between smoking and cancer has been publicized for over 30 years.

Several factors have contributed to increased awareness of the risks of regular drug use. In the past few years many groups and organizations have developed drug information and education programs aimed at this age group, especially focused on drinking and driving. Parents groups, voluntary organizations and safety and health professionals are involved in these efforts. Schools are now conducting programs based on drug prevention curricula. Evaluations of some of the curricula that help young people resist peer pressure and say "No" to cigarettes, drugs, and alcohol indicate that they are effective in delaying onset and preventing first use.

To continue progress toward this objective, media campaigns and community and school-based programs are needed to create and maintain awareness among high school seniors of the risks of regular use of drugs and alcohol. To further

encourage the development of programs in the schools, it would be helpful to determine how many programs currently exist, the nature of the preventive curricula and the effects. Much more needs to be done to make youth aware of the risk of alcohol intoxication similar to the risk of illicit drug use. Mass media messages, both advertising and entertainment, overwhelmingly present a "pro" drinking environment, with little or no risk information provided. Even good school and community education programs may be overpowered by media messages and negative peer pressure.

The objective should be revised to include cocaine. There has been a rise in the perception of "great risk" in using this drug from 69.5 percent in 1979 to 78.8 percent in 1984. However, the declining cost of the drug, its increased availability in general society and its association with leading figures of the sports and entertainment worlds pose a challenge to efforts to sustain that gain in awareness.

Objective p. By 1990, pharmacists filling prescriptions should routinely counsel patients on the proper use of drugs designated as high priority by the FDA, with particular attention to prescriptions for pediatric and geriatric patients and to the problems of drinking alcohol beverages while taking certain prescription drugs.

Baseline Baseline were not available.

Status No current data are available.

Comment Due to a lack of data, it is not possible to predict whether this objective will be achieved. In addition, Food and Drug Administrtation has not designated any drugs as high priority.

Objective q. By 1990, the proportion of workers in major firms whose employers provide a substance abuse prevention and referral program (employee assistance) should be greater than 70 percent.

Baseline In 1976, 50 percent of a sample of Fortune 500 firms offered some type of employee assistance program (EAP).

Status By 1979, the number of firms offering EAPs increased to 57 percent. Although comparable and specific data are not available, many reviewers of this objective believe it has been achieved.

Comment It appears this objective will be achieved by 1990. According to knowledgable professionals, more and more executives in Fortune 500 Firms are realizing the positive impact of EAPs. It also appears that executives in smaller firms are learning the benefits of EAPs. Large firms were targeted in this objective because they are the trend setters which smaller firms often follow. The idea was to encourage large firms to offer EAPs so that smaller firms would follow suit. Overall, health promotion programs are becoming more widespread in the private sector, and a number of firms have demonstrated net cost savings through alcohol and drug

EAPs. There are more problems for small firms to overcome in establishing EAPs. Small firms frequently do not have the resources to establish independent EAPs. Therefore, some small firms join together to form consortia which offer EAPs to all companies within the consortium. Such joint efforts allow smaller companies to obtain EAP services. Further, studies showing the cost benefits of such programs are useful to interest firms in such programs. As studies are gathered and more firms understand the potential benefits, the barriers probably will gradually be overcome.

Suggestions have been made to modify the wording of this objective to reflect numbers of companies with EAPs rather than employees for which EAPs are available. The recommended wording is: "By 1990, the proportion of major firms that provide an employee assistance program (including a substance abuse prevention and referral service) should be greater than 70 percent.

Objective r. By 1990, standard medical and pharmaceutical practice should include drug profiles on 90 percent of adults covered under the Medicare program, and on 75 percent of other patients with acute and chronic illness being cared for in all private and organized medical settings.

Baseline Baseline data were not available.

Status No current data are available.

Comment Due to a lack of data, it is impossible to predict whether this objective will be achieved. Drug profiles are usually kept as a component of outpatient records. Medicare only provides reimbursement for inpatient drugs, and, hence, information would not be collected on drug profiles for Medicare recipients as a part of the Medicare system. There are no data available for the second part of the objective which focuses on drug profiles for other patients with acute and chronic illnesses.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective s. By 1990, a comprehensive data capability should be established to monitor and evaluate the status and impact of misuse of alcohol and drugs on: health status; motor vehicle accidents; accidental injuries in addition to those from motor vehicles; interpersonal aggression and violence; and sexual assault; vandalism and property damage; pregnancy outcomes; and emotional and physical development of infants and children.

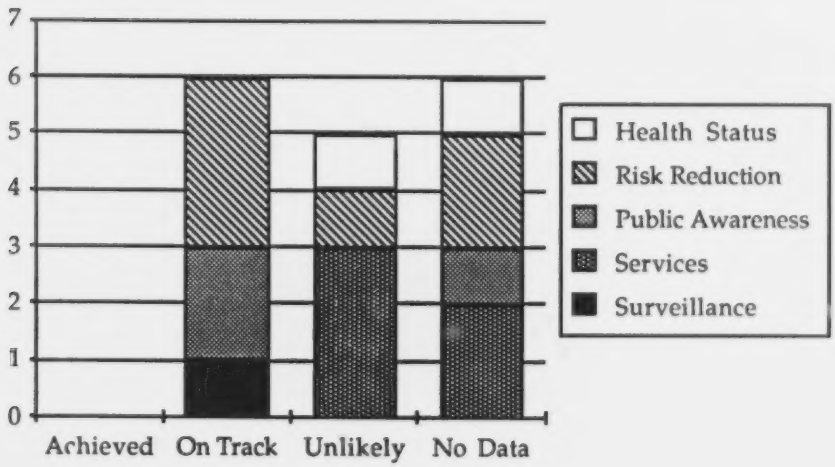
Comment Based on progress to date, it is unlikely that this objective will be met. Coordination between PHS agencies, such as NIAAA, NIDA, and NCHS, and the private sector has led to some progress on achieving this objective. However, working out the problems inherent in multilinked data systems, particularly those comprised of many disparate parts will take time.

Section M NUTRITION

Over the past decade, a stronger understanding has been developed of the role of nutrition in disease prevention and health promotion. Linkages between certain nutrient deficiencies and health status have long been recognized. In recent years, diet has been associated with a number of chronic diseases, such as cardiovascular disease, cancer and diabetes; and the focus of concern about human nutrition has moved from issues of nutritional deficiency toward increased emphasis on chronic disease prevention and health maintenance.

The inclusion of nutrition as a separate priority area in the 1990 Health Objectives for the Nation reflects the growing consensus about the role of nutrition in health promotion and disease prevention. The progress made to date in achieving the objectives included in this priority area reflects both the degree to which national concern about nutrition has begun to have some effects on actual behavior and the relative immaturity of the field. Of particular concern is the number of objectives that are not measurable.

Status of Nutrition (17 Objectives)



Another special concern in the nutrition area is the persistence of overweight in the American population and the epidemiologic evidence suggesting vulnerability to chronic diseases linked to this condition. On the other hand, heartening data are reported on the level of public awareness about the danger of being overweight and the basic requirements of calorie-reduction and physical exercise required to control weight.

IMPROVEMENT OF HEALTH STATUS

Objective a. By 1990, the proportion of pregnant women with iron deficiency anemia (as estimated by hemoglobin concentrations early in pregnancy) should be reduced to 3.5 percent.

Baseline In 1978, the proportion of pregnant women with iron deficiency anemia was 7.7 percent.

Status National data representative of the iron nutritional status of the population and its subsets during 1980-1985 are not available. In 1983, low hemoglobin values were reported as 17.3 percent and low hematocrits were observed as 25.8 percent in a limited sampling of low income pregnant women. (Centers for Disease Control)

Comment Progress toward this objective is difficult to evaluate because the data available to track progress are surveillance data from a voluntary reporting system rather than from a national sample survey, and as such may not reflect the iron nutritional status of the entire U.S. population of pregnant women. The National Health and Nutrition Examination Survey II (NHANES II), a national sample survey conducted from 1976 to 1980, provides limited information on the iron status of pregnant women due to the relatively small number of women included in the survey, measurement issues, and variation between the stage of pregnancy for surveyed women and the focus for this objective (hemoglobin concentrations early in pregnancy).

The CDC Pregnancy Surveillance System provides hemoglobin and hematocrit data collected for those States which voluntarily provide data primarily from low income women participating in the Special Supplemental Food Program for Women, Infants, Children (WIC). These data provide the best current measurement of the status of this objective, but they must be interpreted with caution because, as stated above, the sample is not representative of all pregnant women in the population. Also, the data covered the three trimesters of pregnancy, and normal hemodilution that occurs in the second trimester of pregnancy is a physiologically predictable form of anemia. Inflammation, infection, folacin deficiency, compromised vitamin B-12 status, altitude, and other factors also limit the usefulness of hemoglobin or hematocrit as absolute diagnostic indicators of iron-deficiency anemia. Further, evolving science associated primarily with the analysis of data on several indicators of iron nutritional status collected in the NHANES II survey indicates that no single biochemical measure of iron deficiency is consistently diagnostic of iron deficiency.

Federal maternal and child health programs have substantially increased services and training to improve nutrition and health for pregnant women, infants and children, and most include some emphasis on iron nutrition. Available data from the WIC program of USDA and State Maternal and Child Health programs suggest progress in communicating information to the public about the prevention of iron deficiency anemia, and some research has reported beneficial effects on hemoglobin levels in children enrolled in the WIC program.

While hemoglobin or hematocrit is insufficient to diagnose iron deficiency anemia, the collection of such information is economical and useful for assessing trends in population subgroups. The collection and reporting from all States could enhance the value of the data from the CDC Pregnancy Nutrition Surveillance System.

Other efforts which will be helpful in progressing toward improved iron status of the population include continued emphasis on programs such as the Healthy Mothers, Healthy Babies Coalition which coordinates public and private sector efforts and focuses on education of the public and continued support for the WIC program including better coordination with Maternal and Child Health Programs at State and local levels.

The analyses of NHANES II data indicate compromised iron status and possibly iron-deficiency anemia population segments include more than pregnant women; for example, young children, adolescent males and females, and women of childbearing age. The continued collection and timely analysis of iron status indicators in the NHANES III is essential to the evaluation of progress toward reduction of impaired iron status in the total population.

Objective b.

By 1990, growth retardation of infants and children caused by inadequate diets should have been eliminated in the United States as a public health problem.

Baseline

In 1972-1973, it was estimated that 10 to 15 percent of infants and children among migratory workers and certain poor rural populations suffered growth retardation due to diet inadequacies.

Status

In 1983, data show that linear growth retardation remains at levels ranging from 10.9 to 23.6 percent in a selective group of low income children, ages three to 23 months, of all ethnic groups screened (White, Black, Hispanic, Native American and Asian). In addition to these groups, linear growth retardation was 12.1 percent for Hispanic two to five year olds; 22.4 percent for Asian two to five year olds; and 16.6 percent for Hispanic six to nine year old children. (The high prevalences among Asian children is because of the inclusion of the special population of Southeast Asian refugees). Data are not available for the period 1983-1985. (The 1983 CDC Nutrition Surveillance Report; Report on the Scientific Community's Views on Progress in attaining the Public Health Service's Objectives for Improved Nutrition in 1990. LSRO/FASEB, Feb. 1986.)

Comment

Based on the CDC data, it appears that, though modest progress has been made, it is unlikely that this objective will be met. In 1983, the CDC Pediatric Nutrition Surveillance System operated in the District of Columbia and 29 States. While it provides the most extensive data set, the data are not representative of the entire U.S. population of infants and children because data collection is limited to children receiving health services participating primarily in the WIC and Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) programs.

These data reported by CDC for 1979 to 1983 indicate some decrease in short stature among Hispanic and Asian American children, but not among White, Black or Native American groups. Further analysis by age groups of children show that, within ethnic groups for children less than two years of age, all except Native Americans experienced modest decreases in prevalence of low height-for-age, and for children two through five years of age, over the same five-year period, only Asian American children experienced decreases in low height-for-age prevalence. Analyses of NHANES I and II data confirm the patterns reported from the CDC data that children above the poverty level tended to be taller, heavier, and fatter than children living below the poverty level.

The etiology of growth retardation is complex and thus difficult to identify solely with inadequate diet. The primary causes of malnutrition infer insufficient food to support normal growth and development, but malnutrition is secondarily conditioned by factors such as illness and poverty. Strategies to alleviate the secondary causes of malnutrition take the form of programs for target population groups to increase food availability by income transfer or food supplementation, and to provide nutrition education and health services.

RISK REDUCTION

Objective c. By 1990, the prevalence of significant overweight (120 percent of "desired" weight) among the U.S. adult population should be decreased to 10 percent of men and 17 percent of women, without nutritional impairment.

Baseline In 1971-1974, 14 percent of adult men and 24 percent of women were more than 120 percent of desired weight.

Status National data on the prevalence of overweight individuals, based on actual measurement, are not available for the period from 1980 to 1985. In 1976-80, 26.3 percent of adult men and 29.6 percent of adult women were overweight. (National Health and Nutrition Examination Survey II, NCHS.)

NOTE: The NHANES II, conducted between 1976 and 1980, used the body mass index (BMI) measurement, where body weight is adjusted for height (BMI = Body Weight in Kilograms/Height in Meters) to assess overweight conditions. Overweight was defined as BMI greater than or equal to 27.8 for males and 27.3 for females. Severe overweight was defined as BMI greater than or equal to 31.1 for males and 32.3 for females, these values being equal to the 95th percentile for males and females in the 20-29 year old age range. The appropriate language for this objective in terms of BMI would be: "By 1990, the prevalence of overweight (BMI of 27.8 or higher for men and 27.3 or higher for women) among the U.S. adult population should be reduced, without impairment of nutritional status, to approximately 18 percent of men and 21 percent of women."

Comment Based on the NHANES I and II data, which suggest little reduction in overweight between 1971 and 1980, it appears unlikely that this objective will be achieved.

Data from the upcoming NHANES III will be required, however, to assess the actual progress, or lack thereof, since 1980 in the reduction of overweight in the population.

Obesity and overweight are of complex etiology. The National Institutes of Health Consensus Development Conference on the Health Implications of Obesity, held in December 1984, stated that obesity in man is complex and deeply rooted in the biologic system. There are different types of obesity, and they almost certainly have multiple causes. It is vitally important to increase the understanding of obesity to enable prevention. Several areas for investigation were stressed by the Conference, including the elucidation of biologic markers, factors regulating the distribution of body fat, studies of energy regulations, and studies using the techniques of anthropology, psychiatry, and the social sciences.

Obesity is a significant public health problem because it affects a large proportion of the population and has adverse effects on health and longevity. Weight reduction is desirable for individuals who are overweight as defined by BMI, and for individuals who are less obese but have certain medical conditions, such as non-insulin-dependent diabetes mellitus, hypertension, hypertriglyceridemia, or hypercholesterolemia. Therefore, this objective continues to be a high priority for the health provider community as well as research scientists working to expand the knowledge base describing the causes and types of obesity.

Objective d. By 1990, 50 percent of the overweight population should have adopted weight loss regimens, combining an appropriate balance of diet and physical activity.

Baseline Baseline data were not available.

Status Data from the Health Promotion/Disease Prevention Supplement to the 1985 National Health Interview Survey (NHIS) indicate that 27 percent of males and 46 percent of females say that they are trying to lose weight. About 30 percent of overweight females and 25 percent of overweight males reported adopting weight loss regimens that combine both exercise and diet restriction.

Comment No baseline data are available for assessing the degree of progress toward this objective. However, the 1985 NHIS data suggest there is substantial awareness among the American public of the regimen required to accomplish weight loss.

As part of greater public awareness and interest in health promotion, there is increased awareness that overweight has undesirable health consequences and that weight reduction involves taking in fewer calories and/or increasing physical activity. Surveys, however, have given less attention to the equally important areas of the duration and type of weight programs undertaken by individuals, and their degree of success.

Within the scientific, nutrition and medical communities there is now almost universal agreement on the importance of exercise in both the prevention of obesity and in weight loss programs. Promotion by these communities is a critical factor in achieving this objective.

Progress toward achieving this objective also is tied to research which increases the understanding of the basic nature of obesity as outlined in the previous objective.

Objective e. By 1990, the mean serum cholesterol level in the adult population 18 to 74 years of age should be at or below 200 milligrams per deciliter.

Baseline In 1971-74, for male and female adults aged 18 to 74, the mean serum cholesterol value was 223 milligrams per deciliter.

NOTE: Because it is not adjusted to a standard reference (the Abell-Kendall method), 223 milligrams is 4.5 percent higher than the actual value.

Status In 1976-80, the mean serum cholesterol value for men and women ages 18 to 74 was, respectively, 211 and 215 milligrams per deciliter. (National Center for Health Statistics; National Heart, Lung, and Blood Institute.)

Comment It is uncertain whether this objective will be met by 1990, but plans by government health agencies for extensive education of the American public about cholesterol are encouraging that it will be. The long term trend in mean serum cholesterol has been downward. Most evidence confirms that mean blood total cholesterol levels of U.S. adult men have fallen from the range of 235 to 245 milligrams per deciliter in the 1940s and 1950s to 210 to 215 in the early 1980s (Stamler, J. Coronary heart disease: doing the "right things." N. Engl. J. Med. 312:1053-1055). Population data from the NHANES II (1976-80) and the National Health Examination Survey (1960-62) indicate that mean serum cholesterol values dropped significantly during the twenty-year period from 1960 to 1980.

The 1984 NIH Consensus Conference on Lowering Blood Cholesterol to Prevent Heart Disease recommended that individuals with high risk blood cholesterol levels be treated intensively by diet means (and drugs, if diet is inadequate) and that adults with moderate risk be treated intensively by diet means, especially if additional risk factors are present. Values for selecting adults at moderate and high risk requiring treatment were:

Age	Moderate Risk	High Risk
20-29	Greater than 200 mg/dl	Greater than 220 mg/dl
30-39	Greater than 220 mg/dl	Greater than 240 mg/dl
40 and over	Greater than 240 mg/dl	Greater than 260 mg/dl

The Consensus Conference concluded that elevated blood cholesterol level is a major factor in coronary artery disease; that the blood cholesterol level of most Americans is undesirably high in part because of high dietary intake of calories, saturated fat and cholesterol; and that appropriate dietary changes will help to reduce blood cholesterol levels. Along with changes in these components in the diet of the general public, it was recommended that new and expanded programs be planned and initiated to educate physicians, other health professionals and the public to the significance of elevated blood cholesterol and the importance of treating it.

The National Heart, Lung, and Blood Institute (NHLBI) is providing the focus for development of plans for a National Cholesterol Education Program and is enlisting participation and contribution of industry and all interested organizations and associations at the national, State, and local levels. The program will empha-

size the importance of individuals knowing their own risk factors for heart disease, including blood cholesterol level and how to interpret it. If blood cholesterol is high, individuals will be encouraged to see their physicians for further advice. If blood cholesterol is average, they will be encouraged to be prudent in dietary intake. The NHLBI is surveying the level of knowledge possessed by professionals and the public with respect to blood cholesterol and will monitor progress in the program.

The Consensus Conference also recommended that the food industry be encouraged to continue and intensify efforts to market foods compatible with recommended dietary guidance; that food labels include the source of fat, total fat, saturated and polyunsaturated fat, and cholesterol content as well as other nutrition information; and that the public be educated to use this information to achieve dietary aims. FDA is developing, and will shortly propose, regulations to encourage manufacturers to provide more labeling of fat and cholesterol content, including appropriate descriptive terms relative to cholesterol, for label use. Increased public and industry attention to cholesterol stimulated by NHLBI research and activities is likely to encourage industry efforts to develop foods of lower fat and cholesterol content. FDA also will have a program to educate the public about the use of this information and, in support of the NHLBI Cholesterol Education Program, will attempt to help increase public awareness of the relationship between dietary fat and cholesterol and heart disease.

Also, the recently reissued Dietary Guidelines, which are being widely distributed, highlight the reduction of fat, saturated fat, and cholesterol in healthy diets and suggest some ways to reduce these components through appropriate food selection.

Objective f. By 1990, the mean serum cholesterol level in children aged one to 14 should be at or below 150 milligrams per deciliter (mg/dl).

Baseline In 1971-74, for children one to 17 years of age the mean serum cholesterol level was 176 mg/dl.

Status Recent national population data on mean serum cholesterol levels in children are not available.

Comment Data are insufficient to predict whether this objective will be met by 1990. The Health Examination Survey (1960-62) and NHANES II (1976-80) have serum cholesterol data only on adults 18 to 74 years of age; thus information on the recent trend in a population sample of children is not available.

The Consensus Conference on Lowering Blood Cholesterol to Prevent Heart Disease specifically excluded children under two years of age from the advice offered for modification of the diet of the general population. Other medical, health and scientific authorities are in general agreement that the diets of children under two years should not be modified. Therefore, that age children should not be included in this nutrition objective.

Special guidance from the Consensus Conference indicated that "high-risk" children should be identified, primarily through family histories, and that their dietary management should be part of total management that includes regular exercise programs, maintenance of ideal weight, avoidance of excess salt, and avoid-

ance of cigarette smoking. For healthy children over two years of age, the Conference considered the moderate fat and moderate cholesterol diet recommended for the general population, with avoidance of excess weight, to be safe and nutritionally adequate, but stated that such a diet might be inappropriate in children that are malnourished or have special nutritional requirements.

The National Cholesterol Education Program, discussed under the previous objective, will contribute significantly to knowledge about progress on this objective. Increased adult attention to individual cholesterol levels is likely, in the long term, to have salutary effects on other family members. New technology which utilizes a finger stick sample of blood and performs rapid automated analysis will be especially useful for screening children in high risk families and in collecting samples from children in surveys.

Objective g. By 1990, the average daily sodium ingestion (as measured by excretion) for adults should be reduced to at least the three to six gram range.

Baseline In 1979, estimates ranged between averages of four to ten grams of sodium.

Status Recent population surveys to calculate sodium ingestion by measuring excretion are not available. However, recent estimates of adult intake have been made from dietary intakes. Data from the first two years of the revised FDA Total Diet Study (FY 82-84) indicate that average sodium intakes for adults, excluding salt added at the table, were within the Estimated Safe and Adequate Daily Dietary Intake (ESADDI) range of 1100 to 3300 mg established by the National Academy of Sciences in 1980. Very preliminary one-day data from the USDA indicate average sodium intakes for women ages 19 to 40 of about 2600 mg, also not including salt added at the table. However, data from both surveys indicate sodium intakes for children above the ESADDI for that age. [Total Diet Study (TDS), and Food Label and Package Survey (FLAPS), Food and Drug Administration; the National Health and Nutrition Examination Survey (NCHS); and the Nationwide Food Consumption Survey and the National Nutrient Data Bank.]

Comment Progress on this objective as stated is difficult to assess without population data on sodium excretion. Recent estimates based on dietary data suggest that average nondiscretionary sodium intakes for adults may fall within the target range of this objective. However, caution must be exercised in interpreting these data because estimates of sodium intake based on dietary data are much less precise than excretion data. Also, the sodium content of some foods is highly variable, as is the amount of sodium added by consumers in preparation or at the table.

An analysis of the FDA 1982-1983 and 1983-1984 Total Diet Study surveys estimated daily sodium intakes excluding salt added at the table as: 724 mg for infants six to 11 months, 1688 mg for two year old child, 2210 mg for females 14 to 16 years, 3359 mg for males 14 to 16 years, 2016 mg for females 25 to 30 years, 3097 mg for males 25 to 30 years, 1917 mg for females 60 to 65 years, and 2656 mg for males 60 to 65 years. These data indicate that, except for the two-year old child and the 14 to 16 year old male, nondiscretionary sodium was within the ESADDT range established by the National Academy of Sciences in 1980.

Substantial efforts have been directed toward reducing the average U.S. sodium intake since 1980. Public information programs by both government and private organizations have helped to increase public awareness about the association

between high sodium intake and hypertension in some individuals, the sources of sodium in the diet, and the recommended sodium intakes. Data about consumer knowledge collected between 1973 and 1983 indicate significant increases in public awareness of the relationship between sodium and hypertension and in consumer avoidance of salt or sodium.

Also, as the result of FDA's regulatory efforts, the sodium content is labeled on many more food products than prior to 1980. Data from FLAPS show an increase in packaged processed foods with sodium labeling from 7.5 percent in 1978 to 40 percent in 1984.

On the basis of available information, it is highly likely that some degree of decrease has occurred in the average sodium consumption. Continuing public education on sodium, coordinated with and encompassing other risk factors associated with chronic disease, is needed to accomplish this objective. Collection of data on sodium intake by both dietary and urinary excretion assessment in NHANES III on representative samples of infants, children and adults would be extremely helpful in measuring progress on this objective.

NOTE: This objective erroneously refers to "daily sodium ingestion." It should read "salt," not "sodium." Three to six grams salt corresponds roughly to 1.2 to 2.4 grams sodium. Likewise, the baseline data cited should read four to 10 grams salt (or 1.6 to four grams sodium). The objective was initially based on data from the 1976-80 Health and Nutrition Examination Survey (HANES) II. The 24-hour dietary recall component of this survey found the mean daily sodium consumption to be about 2.3 grams for females (range for 18-74-year-olds: 1.9-2.3 grams) and about 3.3 grams for males (range for 18-74-year-olds: 2.9-4.1 grams). A sodium target as low as 1.2-2.4 grams daily may not be necessary for the entire population. The issue is currently under study.

Objective h. By 1990, the proportion of women who breastfeed their babies should be increased to 75 percent at hospital discharge and to 35 percent at six months of age.

Baseline In 1978, the proportion was 45 percent at hospital discharge and 21 percent at six months of age.

Status In 1983, the reported prevalences of breastfeeding among low income women at six to ten weeks post-parturition were as follows: 27.4 percent for White mothers, 44.3 percent for Native Americans, 28 percent for Hispanics and 13.6 percent for Blacks. These CDC data are primarily from low-income women enrolled in the WIC program.

In 1984, a private survey conducted by Ross Laboratories (National Mothers' Survey) indicated that 61 percent of infants were breastfed at one week of age and 27.5 percent at six months of age. (These data include infants receiving formula in addition to breastfeeding, and the survey excludes births to unwed mothers.)

Comment Based on the trends from 1971-1981 which indicate rapid increase in breastfeeding both at hospital discharge and at six months of age, this objective might be achieved by 1990. Recent data reported by Ross Laboratories, however, indicate that this trend appears to have slowed since 1982. Also, progress toward achievement of this objective varies greatly among U.S. geographic regions and population groups. According to the 1984 Ross Mothers Survey, in the Pacific and

Mountain regions, more than 75 percent of infants were breastfed in hospitals and more than 35 percent continued to breastfeed at five to six months of age. Breastfeeding was lowest in the East South Central Census areas with 46 percent in the hospital and 17 percent at five to six months. Other regions ranged between these percentages.

The increase in breastfeeding that has occurred has not been as pronounced among the disadvantaged. Data indicate that Black and poorly educated women in general are less likely to breastfeed than White women. Within racial groups, the poorly educated are less likely to breastfeed than the more highly educated.

Information collected since 1970 suggests an increasing impact of sociodemographic factors on patterns of breastfeeding, including maternal age at parity, maternal education, family income, and maternal employment. There is a need for continuing concerted effort to encourage breast- feeding through programs such as the Healthy Mothers-Healthy Babies Coalition and to provide education and support for prospective mothers, especially the economically and/or educationally disadvantaged. In addition, continuing efforts to modify routines and practices of health care, improvement in support systems for nursing mothers, education of the general public and acceptance of a provision for accommodation of breastfeeding in the work environment are needed if this objective is to be achieved by 1990.

PUBLIC AND PROFESSIONAL AWARENESS

Objective i. By 1990, the proportion of the population which is able to correctly associate the principal dietary factors known or strongly suspected to be related to disease should exceed 75 percent for each of the following diseases: heart disease, high blood pressure, dental caries, and cancer.

Baseline Baseline data are largely unavailable. In 1978, 12 percent of aduits were aware of the relationship between high blood pressure and sodium intake.

Status Data on the total population are not available; surveys of public knowledge primarily are on the adult population. It may be that progress on this objective in the nonadult population could be assessed under the objective which addressed nutrition education in the school health curriculum at the elementary and secondary levels.

FDA surveys in 1982 and 1984 indicate that about 50 percent of the adult population is aware of a suspected link between hypertension and sodium/salt consumption. The 1982 survey indicated that about 45 percent of adults were aware of a link between cardiovascular disease and saturated fats and/or cholesterol. The 1984 survey indicated about 78 percent were aware that there are health problems related to the consumption of fats. About 24 percent of adults related fat consumption to overweight/obesity, and of that percent, only three percent linked fat consumption to cancer, while about two-thirds linked fat to coronary heart disease. Another source indicates that 59 percent of the adult population

believe sodium is the substance most often associated with high blood pressure (NCHS, 1985). Eighty-six percent of the adult population indicates that high blood cholesterol increases the risk of having heart disease, and 80 percent is aware that eating a diet high in animal fat also increases a person's chances of getting heart disease. About 90 percent of the adult population indicates that avoiding between-meal sweets is important in reducing tooth decay.

Comment

Based on data from recent surveys, it is likely that this objective will be achieved. Proportions approaching or exceeding 75 percent of the adult population already may have become aware of principal dietary factors known or strongly suspected to be related to heart disease, high blood pressure, and dental caries. Although limited data relative to public awareness of dietary factors that may be associated with increased risk of cancer are available, it is likely that awareness has increased because both the National Cancer Institute and the American Cancer Society have recently publicized dietary guidance.

In the last decade, greater public awareness of the association of good nutritional practices with health promotion and disease prevention has been encouraged by both government and private sector information/education activities. The *Dietary Guidelines for Americans* were issued by USDA and DHHS in 1980 and reissued in 1985, and millions of copies have been distributed to the public. The USDA is developing brochures for consumer use on each of the seven guidelines and in the past has developed "Ideas for Better Eating, Menus and Recipes to Make Use of the Dietary Guidelines." The NIH has held consensus conferences on obesity, heart disease, and osteoporosis. The NHLBI has had for sometime an education program on hypertension including dietary aspects and is developing a cholesterol public education program which includes the role of diet in heart disease. The NCI has underway a program to reduce risk of cancer. The FDA has informational and regulatory programs on sodium. Many organizations in the private sector have similar information/education activities. As measured by current surveys, such programs and strategies have elevated public awareness of the diet-related risks of the several chronic degenerative diseases. Continuing educational support is required to continue the trend of greater public awareness of diet-disease relationships.

Objective j.

By 1990, 70 percent of adults should be able to identify the major foods which are: low in fat content, low in sodium content, high in calories, high in sugars, good sources of fiber.

Baseline

Baseline data were not available.

Status

Data from both government and private surveys indicate that many U.S. adults know about nutrition and presumably have knowledge about the nutrient content of foods to some degree. One national survey has reported changes in eating habits, with six out of ten adults stating that they have changed their eating habits at home and four out of ten stating changes in eating away from home by either increasing consumption of fruits, vegetables or whole grains, or by decreasing consumption of refined sugar, animal fats or salt. Preliminary one-day data from USDA on dietary intakes of women 19 to 50 years of age and their children 1 to 5 years of age indicate that the intakes of both groups were lower in fat and higher in carbohydrates in 1985 than in 1977. Also, nutrition labeling on food labels has

increased, with about 54 percent of sales of processed packaged foods carrying this information in 1984. [Consumer Multipurpose Survey (FDA 1982 and 1984); Food Labeling and Package Survey (FDA 1984); Gallup Organization for the National Restaurant Association 1983); Hearst Corporation 1985; Women's Day/Food Marketing Institute 1980; Continuing Survey of Intakes by Individuals, USDA.]

Comment

Data are incomplete to assess definitively progress on this objective. Available data suggest that the public has become increasingly conscious of nutrition and health in recent years and that some changes are occurring in eating patterns, thus suggesting increased knowledge about food components. In a 1982 FDA consumer survey of a statistically representative sample of the adult population, 53 percent claimed to pay attention to some portion of the nutrition label, and 35 percent claimed, on occasion, to have made purchase decisions based on nutrition information on the package.

NCHS has initiated efforts to assess public knowledge of nutrition principles that promote health and prevent disease, which should assist in tracking progress on this and the preceding objective, along with other efforts already in place during 1985 to 1990.

Certainly much more information about food characteristics has become publicly available since 1980. Point-of-purchase information about nutrient composition has been increased on food labels and through other consumer information/education activities in retail food markets such as shelf labeling and consumer materials. The *Dietary Guidelines for Americans* have been issued by the Federal Government and widely disseminated both publicly and privately. The USDA has recently issued a series of bulletins with tips to help the public use the seven Dietary Guidelines in selecting their foods. These bulletins provide substantive information on the fat, fatty acid, cholesterol, sugar, and sodium content of foods, as well as information about types and sources of fiber. Similar dietary guidance related to food and nutrient composition and selection for health promotion have been issued by the private sector. Through the media, much additional information has been disseminated about diet and associated health risks.

Knowledge about dietary risk factors for chronic diseases and about food composition are intimately related. Therefore, education efforts relative to these two objectives should be approached jointly, as should their monitoring for progress.

Objective k.

By 1990, 90 percent of adults should understand that to lose weight people must either consume foods that contain fewer calories or increase physical activity or both.

Baseline

Baseline data were not available.

Status

In 1985, 74 percent of the population over 18 years of age believed that eating fewer calories is one of the two best ways to lose weight; 73 percent believed that increase in physical activity is one of the two best ways. (National Center for Health Statistics)

Comment

From available data, it appears likely that this objective will be met. Efforts to attain this objective are integral to the objective related to adoption of weight loss regimens. Provisional data from the 1985 National Health Interview Survey indi-

cate that 27 percent of males and 46 percent of females are trying to lose weight. Of those trying to lose weight, 77 percent (males) and 85 percent (females) were eating fewer calories and 58 percent and 57 percent of males and females, respectively, were increasing their physical activity. Promotion of these two objectives by both the public and private sector is required to assure a high level of awareness about appropriate methods for weight loss and to counter the massive misinformation about dieting that is directed toward the public. Progress toward these objectives should be monitored through continuing consumer knowledge surveys. DHHS and USDA are actively involved in activities to help the public understand how to lose weight. The need to consume fewer calories, or increase physical activities, or both, is clearly stated in the Dietary Guidelines. USDA has developed additional supporting publications to increase the educational potential of the Guidelines.

IMPROVEMENT OF SERVICES

Objective 1. By 1990, the labels of all packaged foods should contain useful calorie and nutrient information to enable consumers to select diets that promote and protect good health. Similar information should be displayed where nonpackaged foods are obtained or purchased.

Baseline In 1978, about 42 percent of the sales of processed packaged foods had nutrition labeling.

Status In 1984, about 54 percent of the sales of packaged processed foods had nutrition labeling. (Food and Drug Administration)

Comment Based on the trend from 1978 to 1984, it is likely that the percentage of packaged processed foods with nutrition labeling will continue to increase, but it is unlikely that all foods will carry nutrient information by 1990. At this time it is not considered feasible or necessary to mandate, via regulations, the nutrition labeling of all foods.

FDA nutrition labeling regulations became effective in 1975. Nutrition labeling is voluntary unless a nutrient is added to a food or a nutrition claim, such as "low in sodium" or "high in vitamin C," is made for a product. Under this policy, over half of the packaged products regulated by the FDA currently provide nutrition information. FDA allows alternative strategies for informing consumers about nutrient content, provided that nutrition information about products is available either on the product label or elsewhere instore, and many supermarket chains are experimenting with innovative activities such as shelf labeling and special materials to inform and educate the public about both packaged and non-packaged foods.

Consumers interest in, and encouragement of, both nutrition labeling and alternative strategies will help to assure that increasing information is available to the public about the nutrient composition of a wide variety of foods.

Objective m. By 1990, sodium levels in processed food should be reduced by 20 percent from present levels.

Baseline No baseline data were available.

Status There is no available data base designed to sample and measure the sodium content of the total processed food supply. As a surrogate measure, FDA's food label surveys of packaged processed foods show a decline in the average sodium content per serving between 1982 and 1983. However, this comparison is difficult to make because of the increasing number of sodium-labeled products in the marketplace and only a short period of time is included. Also, many lower sodium products have become available; between January 1981 and July 1985, 173 new lowered sodium brands were introduced into the marketplace.

Comment Because the data are insufficient, progress on this objective is difficult to estimate. The FDA has had a sodium initiative underway since 1981 which, in part, encourages the food industry to reduce voluntarily the amount of sodium added to processed food and to market a wider choice of foods that are lower in sodium. The FDA initiative includes the formal monitoring of changes in the sodium content of foods, sodium labeling, sodium consumption, and consumer perceptions and buying habits. The Food Label and Package Survey (FLAPS) which is a survey of a national probability sample of 1,600 processed packaged foods, is a means for monitoring changes in sodium labeling and the sodium content of foods. Although the data must be interpreted cautiously and still are very preliminary, the FLAPS data indicate that some decrease may be observed in the sodium content of the processed foods surveyed. Even more preliminary data from the FDA Total Diet Study (TDS) also seem to suggest some sodium reduction, but longer time frames than are currently available are needed to confirm this trend. Also, the TDS includes both fresh and processed food products, further confounding interpretation with respect to this specific objective. Continuing surveillance is required to track progress on this objective.

Objective n. By 1985, the proportion of employee and school cafeteria managers who are aware of and actively promoting USDA/DHHS dietary guidelines should be greater than 50 percent.

Baseline Data were not available.

Status No national statistics are available on the activities promoting the Dietary Guidelines for Americans in worksite feeding facilities and in school cafeterias.

Comment Data are insufficient to evaluate progress on this objective, but many activities suggest significant progress in this area.

The USDA has indicated that food service personnel are a primary target group in the Department's programs to promote the Dietary Guidelines. Through the Nutrition Education and Training Program (NET), which was created in 1977 in Child Nutrition legislation, nutrition education and training has been provided for some school nutrition educators and food service personnel, as well as for school children. In addition, guidance materials have been distributed to every school manager which include the Dietary Guidelines and discuss ways of mod-

erating sugar, fat and salt in school meals. USDA will also soon be publishing recipe files which have been revised to lower the amount of these components in foods served in school cafeterias. To complement these national activities, many State and regional offices have developed special programs to promote the Dietary Guidelines.

A 1985 evaluation of the uses of the first edition of the Dietary Guidelines indicated that they have influenced nutrition messages given to the public in a wide range of educational, health and food assistance programs in a variety of settings at local, State and Federal levels. In both the public and private sectors, the Dietary Guidelines were used as the basis for developing other educational materials.

Nutrition programs offered at worksite locations are becoming increasingly popular as part of health promotion. These programs, rather than focusing solely on food service managers and the Dietary Guidelines per se, usually target specific needs of workers such as weight reduction/maintenance, reduced sodium intakes for hypertensives, and lower fat diets for those with high blood cholesterol. It is likely that these general programs for health promotion have the beneficial effect of creating the demand and, thereby, food management interest in offering healthier menu selections in on-site cafeterias.

The Armed Services, which feed very large numbers of young adults, are engaged in significant efforts to train food service personnel in nutrition, including the Dietary Guidelines and to provide menus based on the guidelines and to develop a data base for an automated system for analysis of nutrients in the menus. The recipes jointly used for all the Armed Services are currently under review and revision to reduce sodium and fat content. Informational materials about the Dietary Guidelines are widely distributed through feeding facilities to patrons. Because of the size of populations affected, these efforts can have substantial impact on this objective.

Objective o. By 1990, all States should include nutrition education as part of required comprehensive school health education at the elementary and secondary levels.

Baseline In 1979, only 10 States mandated nutrition as a core content area in school health education.

Status In 1985, 12 States mandated nutrition as a core content area in school health education. (American School Health Association).

Comment Some progress has been made, but it appears unlikely that this objective for State mandates will be met. Although many States have not mandated nutrition education, the Federal and private sector have many school health programs for the elementary and secondary school population in which nutrition is at least a component.

The USDA's Nutrition and Education (NET) Program, established in 1977, includes grants to State educational agencies to conduct nutrition activities in schools and child care facilities, as well as training for food service personnel in nutrition and food science. By 1981, most States had implemented NET programs and established units within State agencies whose mandate includes nutrition education activities. Several States have utilized NET program resources to inte-

grate school lunch programs with classroom nutrition education (Fisher, K.D. and Bennett, R.B. A Report of the Scientific Community Views on Progress in Attaining the Public Health Service Objectives for Improved Nutrition in 1990, LSRO/FASEB, 1986).

In recent years, many Federal school health programs have been started (Gilbert, G.G., Davis, R.L., and Damberg, C.L. Public Health Reports 100:499-506). For example, CDC has had School Health Programs that have been widely implemented in public, private and Indian Health schools. NHLBI has funded studies to evaluate school health education projects such as the Chicago Heart Health Curriculum Program and the Coronary Risk Factor Intervention in Childhood study.

Also, organizations in the private sector such as the National Dairy Council and the American Heart Association have educational efforts in schools. Many of these nutrition activities occur at the school and community level, and frequently nutrition is one component in a school health program. Therefore, it would be extremely difficult to make a nationwide evaluation, beyond the yardstick of State mandate, of the extent to which nutrition has been integrated into school health education.

Objective p. By 1990, virtually all routine health contacts with health professionals should include some element of nutrition education and nutrition counseling.

Baseline Baseline data were not available.

Status Data on a representative nationwide sample of health professionals such as physicians and other primary care providers and health clinic personnel are not available.

Comment The global nature of this objective makes the assessment of progress on this goal very difficult and also dictates that in all likelihood this objective will not be achieved by 1990. Provisional data from the 1985 National Health Interview Survey do provide, however, some sense of developments in this important area: 22 percent of males and 29 percent of females report that when they visit a doctor or other health professional they discuss eating proper foods.

Many Federal, State, and local activities already contribute to progress on this objective. However, achievement of this long-term social goal is associated with a wide variety of factors and issues. The amount of time devoted to nutrition in basic education programs for health professionals needs to be increased if the nation's health care providers, beyond dietitians and nutritionists, are to have a better appreciation for the role nutrition plays in preventing disease and promoting good health. This step would serve a dual purpose, namely, enhancing the general availability of nutrition information in clinical settings while improving the quality of nutrition information provided to the public. Because continuing education programs for practicing professionals represent an additional, but relatively unused, mechanism through which health care providers can be offered the opportunity to broaden their knowledge and understanding about the role nutrition plays in health and disease, the nutrition content of these programs should be strengthened and expanded as well.

Beyond the need for adequate training programs, two additional factors have the potential to substantially influence whether or not this objective is realized. First,

support and funding for nutrition services in public and private clinical settings need to be continued. The willingness of third-party payors to reimburse for nutrition counseling services is of particular importance. Second, the institution of certification programs as a way to determine the basic competence of non-nutritionist health care providers for offering nutrition counseling would ensure the availability of high quality services, but might also serve to limit the number of providers able to offer such services.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective q. Before 1990, a comprehensive national nutrition status monitoring system should have the capability for detecting nutritional problems in special population groups, as well as for obtaining baseline data for decisions on national nutrition policies.

Baseline The proposal for a National Nutrition Monitoring System (NNMS) was submitted to Congress in 1978 by DHHS (then DHEW) and USDA. At that time baseline data were available from the 1977-1978 Nationwide Food Consumption Survey (NFCS) and the first National Health and Nutrition Examination Survey (NHANES I) which was conducted in 1971-74. Auxiliary components of NNMS, including Mortality and Natality Surveys, Food Label and Package Surveys (FLAPS), Multipurpose Consumer Survey, Total Diet Study, and Pregnancy and Pediatric Nutrition Surveillance Systems (PPNSS), were in place.

Status Implementation plans for the NNMS were submitted to Congress in 1981. The NHANES II survey was conducted from 1976-80 and results have been reported. The report from the Joint Nutrition Monitoring Evaluation Committee (JNMEC) to Congress is being published in 1986. Through an interdepartmental committee, plans are in place for compatibility and linkages between NFCS and NHANES in upcoming surveys, where feasible. Recommendations have been submitted by various DHHS areas for dietary, biochemical and other measures for NHANES III. The USDA began a Continuing Survey of Food Intakes by Individuals (CSFII) in 1985. The PPNSS now collects data from 29 Sates and the District of Columbia. The other components of NNMS regularly collect data in their individual areas. (National Center for Health Statistics; Centers for Disease Control; Food and Drug Administration; U.S. Department of Agriculture).

Comment Based on progress to date, it appears likely that this objective will be achieved. Data from the various components of the NNMS are already available for decisions on national nutrition policies. For example, the biochemical data from NHANES II on iron, folacin, zinc and vitamin A have been examined recently relative to food fortification policy.

The national surveys have always had limited capability to survey special population groups, but this ability is improving with learning from past surveys and more rigorous planning for the next surveys. The NHANES II oversampled three population groups of presumed higher risk of malnutrition: preschool children

(six months to five years), the aged (70 to 74 years), and the poor (persons below the poverty levels defined by the U.S. Bureau of the Census). The 1977-78 NFCS surveyed households in the 48 coterminous States. Special surveys were conducted in Alaska, Hawaii, Puerto Rico and for the elderly and low income households in the 48 coterminous States. A special Hispanic NHANES survey in 1982-84 provided data on Mexican Americans in five Southwestern States, Cubans in Dade County, Florida and Puerto Ricans in the New York greater metropolitan area.

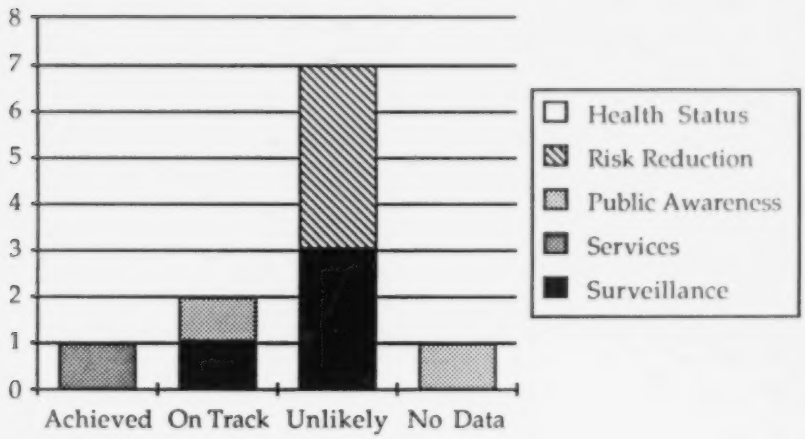
For the upcoming NHANES III, statistical research will be used to design oversampling of ethnic minorities to provide data on Blacks and Hispanics. The Pregnancy and Pediatric Nutrition Surveillance system reports data on low income women and children, and special funding has been set aside to look at Federal capacities to monitor special groups such as the homeless and rural poor. As part of the Nationwide Food Consumption Surveys, USDA has begun yearly data collection on the adequacy of dietary intakes of selected populations beginning with women 19 to 50 years of age and their children one to five years of age. The NFCS data are used in planning food assistance and educational programs and in administering a variety of public programs.

Section N PHYSICAL FITNESS AND EXERCISE

Regular physical activity can benefit a person's health in a number of ways. Established benefits include reduced risk of coronary heart disease, improved ability to maintain desired weight, reduced symptoms associated with temporary anxiety states and relief from the feelings and other symptoms associated with mild to moderate depression. In addition, people who engage in regular physical activity report they feel better generally and have more energy.

Eleven of the 1990 Objectives for the Nation focus on physical fitness and exercise. For the purposes of the objectives, "appropriate regular physical activity" refers to exercise which involves large muscle groups in dynamic movement for periods of 20 minutes or longer, three or more days per week, and which is performed at an intensity requiring 60 percent or greater of an individual's cardiorespiratory capacity. Exercises to improve flexibility and muscle strength, such as calisthenics and weight training, are an important part of a total physical fitness program but are not among the principal foci for this effort, which concentrates on those activities shown to improve cardiovascular functioning.

Status of Physical Fitness & Exercise (11 Objectives)



Considerable progress has been made in the years since the objectives were developed but much remains to be done. The relationship between physical activity and health is better understood today than in 1979, but more research is needed. Recent data collection efforts have provided some insight as to the activity levels of children and adults, but more information is needed about the prevalence and trends of certain physical activity patterns in order to measure physical fitness and exercise levels within the U.S. population.

Close to two-thirds of the objectives appear unlikely to be achieved. Problems associated with the creation of national surveillance and evaluation systems account for part of the deficit. All of the objectives that pertain to the prevalence within specific age groups of participation in appropriate physical activities also appear unlikely to be met. Efforts to redress this situation and improve the prospects these objectives will come within reach cannot succeed, however, without a concomitant change in the social and economic milieu within the U.S., to one that fosters active lifestyles for large segments of the population.

RISK REDUCTION

Objective a. By 1990, the proportion of children and adolescents ages 10 to 17 participating regularly in appropriate physical activities, particularly cardiorespiratory fitness programs which can be carried into adulthood, should be greater than 90 percent.

Baseline Baseline data were not available.

Status In 1984, the rate was 66 percent. (National Children and Youth Fitness Study)

Comment Based on progress to date, it appears unlikely that this objective will be met. The 1984 National Children and Youth Fitness Survey (NCYFS), found that about 66 percent of children and adolescents, ages 10 to 17, report that they participate three or more times per week for at least 20 minutes per session in activities presumed to require 60 percent or more of maximal cardiorespiratory capacity (VO_2 max), and which are considered to be activities most likely to be carried into adulthood because they can be done alone or with one other person. The NCYFS estimate is based on the criterion that participation be year-round. The requirement is considerably different from estimates for adults which are based on data for the present time or a time frame considerably less than one year.

The objective is based on the assumption of a positive association between physical activity patterns in children and adolescents and physical activity patterns in adults. Although that association is not clearly established and deserves more investigation, it is a reasonable assumption at this time. The NCYFS provides a current accurate assessment of the status of the objective, but longitudinal tracking is impaired by virtue of the fact that no similar surveys are known to be scheduled in the future.

In order to provide a greater likelihood of benefit, to ensure a more stable behavior pattern, and to provide a more easily remembered time frame, it is desirable to

increase the recommended duration from 20 to 30 minutes; to be consistent with recommendations by the American College of Sports Medicine on developing and maintaining fitness, it is desirable to reduce the level of $V0_2$ max required for "vigorous" activity from 60 percent to 50 percent.

Physical activity patterns are probably influenced in important ways by events and behaviors that occur before age 10. One of the most frequently recommended modifications of the 1990 Objectives has been to establish objectives pertaining to children less than 10 years.

Progress toward achievement of this objective by 1990 will require educational and promotional efforts at State and local levels and a surveillance system to track progress.

Objective b.

By 1990, the proportion of children and adolescents ages 10 to 17 participating in daily school physical education programs should be greater than 60 percent.

Baseline

In 1974-75, it was estimated that 33 percent of youth participated in daily physical education classes.

Status

In 1984, 36.3 percent of children 10 to 17 years old in grades 5-12 had daily physical education classes. (National Children and Youth Fitness Study).

Comment

Based on data from the National Children Youth Fitness Study (NCYFS), it appears unlikely that this objective will be met. Information from the NCYFS shows that, while the overall participation of children 10 to 17 years in daily physical education classes is 36.3 percent, participation varies markedly by grade. Over 90 percent of children in the fifth through eighth grades are enrolled in physical education classes but, of those enrolled, less than half have daily physical education classes. In contrast, the percent of children in the ninth through twelfth grades enrolled in physical education classes falls from 81.2 percent in grade nine to 52.1 percent in grade 12 but, of those enrolled, more than half have daily physical education classes. Therefore, to achieve a higher percentage of students in daily physical education classes requires different approaches for the different grades. In grades five through eight, physical education classes need to be more frequent, whereas in grades nine through 12 enrollment needs to be increased.

The NCYFS also revealed that only 48 percent of the current physical education curriculum is devoted to activities assumed to be likely to be carried into adulthood; the percent of youths with access to shower facilities ranges from 20.6 percent for grades five and six to 63.4 percent for grades seven through nine; and 80 percent of a typical youth's physical activity time occurs outside of the physical education classes.

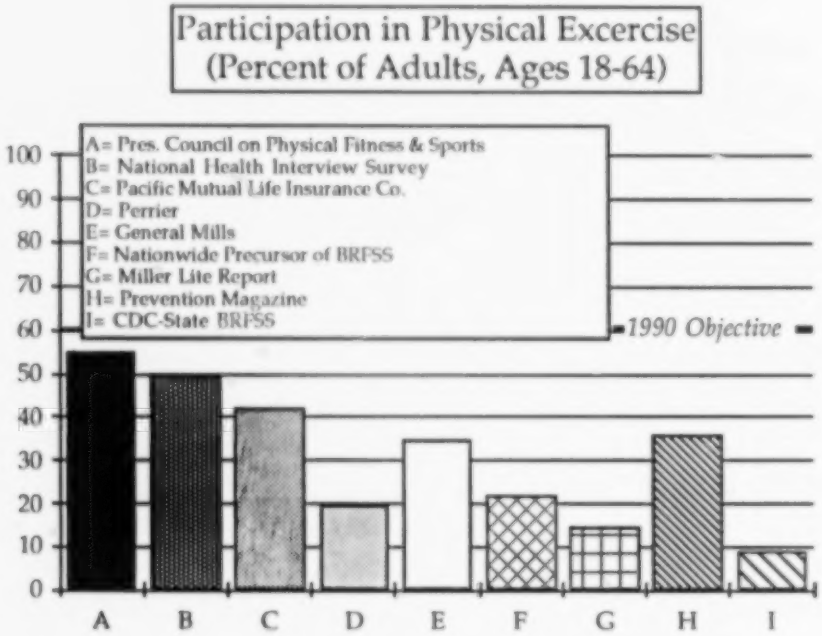
Progress toward achievement of this objective will require an emphasis on fitness as one of the "basics" of school program, local and State financial support for school systems, and attention to the availability of necessary facilities such as showers.

It would appear appropriate for children ages six through nine to be included in this objective. The objective could be modified for older students to emphasize the development of skills in lifetime activities.

Objective c. By 1990, the proportion of adults 18 to 64 participating regularly in vigorous physical exercise should be greater than 60 percent.

Baseline In 1978, the proportion who regularly exercised was estimated at over 35 percent.

Status The current best estimate is that around 10-20 percent of adults participate three or more times per week for 20 minutes or more per session in an activity that requires 60 percent or more of VO_2 max. (National Center for Health Statistics, Centers for Disease Control, U.S. Department of Agriculture)



Comment Based on improved estimates and using definitions for physical activity that conform to criteria relating physical activity to prevention of coronary heart disease (CHD), it appears unlikely that this objective will be met. The data which conform most closely with the criteria are from the Behavioral Risk Factor Surveillance System (BRFSS) begun in 1984 by 18 States with the assistance of the Centers for Disease Control (CDC). The BRFSS obtains information on the frequency, duration, and type of up to two leisure time activities. The analysis takes into account variation in VO_2 max by sex and age and the reported speed of the commonly reported activities—walking, running, and swimming. Preliminary and unpublished analyses estimate that nine percent of adults 18 to 64 years of age meet this objective. In the 1983 survey for *Prevention Magazine*, 36 percent of adult respondents 18 to 64 years of age said they participated three or more days per week for 20 minutes or more at a level which made them breathe hard and accelerated their pulse. Assuming that an average energy expenditure of three kcal/kg-day is roughly equivalent to the levels required by the 1990 objectives, estimates of 18 percent and 22 percent were reported by the Perrier Study and from data in a nationwide precursor of the BRFSS, respectively.

The unpublished data from the BRFSS are presented because the responses are most accurately classified according to the 1990 objectives and because the sample is large (about 10,000) although not nationwide. In addition to the four surveys mentioned in the summary, at least five other surveys of the activity patterns of adults in the United States have been done since 1972. Only a few have provided a clear and objective measurement of activity. None has been repeated and all are sufficiently different to preclude confidently estimating a secular trend. However, popular wisdom and reports of two specific groups suggest that adult leisure time activity has increased over the past 10 to 20 years. Even if leisure time activity has increased, less than one in five seems to be sufficiently active to achieve this objective.

The level of activity prescribed in this objective is expected to provide significant benefit in terms of reduced risk of CHD. Less intense activity, however, also may provide some reduction in the risk of CHD and probably provides other benefits as well.

Given the current level of 10-20 percent, 30 percent is a more realistic objective than the current 60 percent for vigorous physical activity. Based on data from the BRFSS which show that about 50 percent of adults now report participation in leisure time physical activity three or more times per week for 20 minutes or more per session, 75 percent participation in less vigorous activities seems appropriate. The duration should be increased to 30 minutes to provide a greater likelihood of benefit, to ensure a more stable behavior pattern, and to provide a more easily remembered time frame; and the intensity should be reduced to 50 percent VO_2 max as recommended by the American College of Sports Medicine.

Progress toward achievement of this objective will require further development of a social and economic environment conducive to active lifestyles for large segments of the population, and sufficient information about the determinants of an active lifestyle to permit effective and efficient program efforts.

Objective d. By 1990, 50 percent of adults 65 years and older should be engaging in appropriate physical activity, e.g., regular walking, swimming or other aerobic activity.

Baseline In 1975, about 35 percent took regular walks.

Status In 1984, the best estimate is that 10-20 percent of adults 65 years and over participate three or more times per week for 20 or more minutes per session in an activity requiring 60 percent or more of maximal oxygen consumption. (Centers for Disease Control) In 1985, the National Health Interview Survey found that 43 percent of the population 65 years old and over reported walking for exercise.

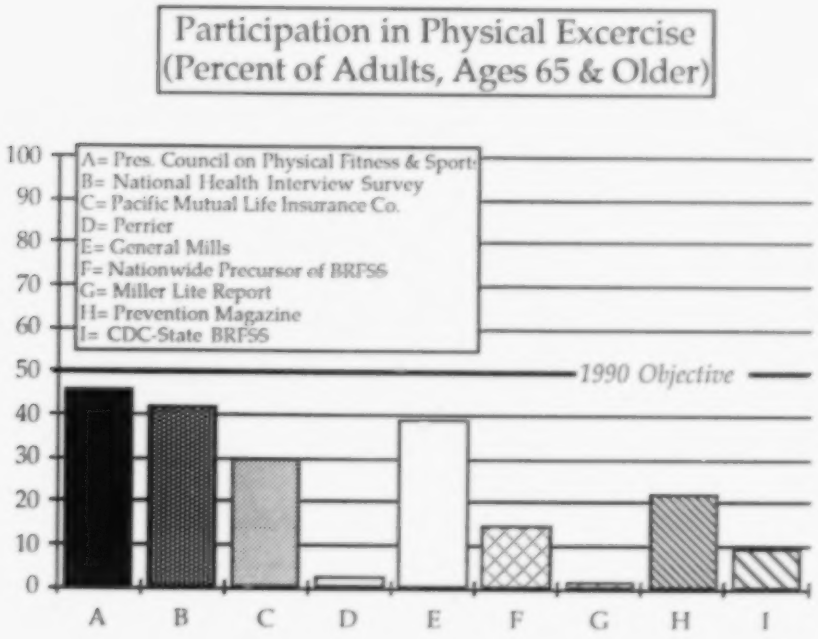
Comment Based on improved data and a definition for physical activity that relates to criteria for prevention of disease, it appears unlikely that this objective will be met. The same problems beset the information about this age group as for adults 18 to 64 years. Although data from several surveys are available and the information for persons 65 years and older can be separated, the variable definitions of activity preclude comparability and an evaluation of secular trends.

One important issue for this particular objective is the intensity of activity that should be required for older adults to achieve the objective. Older adults need not achieve the same absolute speed or vigor of activity as younger adults in order to achieve 60 percent VO_2 max.

Less vigorous activities, such as walking at a pace of four miles per hour, are sufficiently strenuous to require 60 percent VO_2 max for persons 65 years or old-

er. With that assumption, the estimated proportion of older adults achieving this objective is 10-20 percent.

As for other age groups, the duration should be increased to 30 minutes and the intensity reduced to 50 percent VO_2 max. For this age group, walking at a pace of about three miles per hour requires 50 percent VO_2 max. Also similar to other age groups, activity at less than 50 percent VO_2 max probably has a favorable impact on other aspects of health and physical fitness. In particular, regular, even daily, activities that promote the maintenance of the ability to care for oneself are important.



Progress toward achievement of this objective will require further development of a social or economic environment conducive to an active lifestyle for large segments of the population and sufficient information about the determinants of an active lifestyle to permit effective and efficient promotion efforts.

PUBLIC AND PROFESSIONAL AWARENESS

Objective e. By 1990, the proportion of adults who can accurately identify the variety and duration of exercise thought to promote most effectively cardiovascular fitness should be greater than 70 percent.

Baseline

Baseline data were unavailable.

Status

In 1985, the National Health Interview Survey found that 40 percent of adults over 18 years of age believed that one should exercise at least three or four days each week and 23 percent knew that each exercise session should last between 15 and 25 minutes. Approximately 52 percent believed that exercise should continue more than 25 minutes.

Two unpublished local surveys conducted in 1984—one in a Dallas suburb and one in Los Angeles—provide the only measure of achievement of this objective. In the Dallas suburb about 72 percent and in Los Angeles about 76 percent of persons surveyed stated that exercise needed to be performed three or more times per week and maintained 20 or more minutes per session. (Centers for Disease Control)

Comment

Based on the lack of survey's tracking progress on this objective, it is not possible to predict with certainty that this objective will be met. The two unpublished local surveys, however, suggest that public awareness about the type and duration of exercise which is thought to promote cardiovascular fitness may already have reached the target for 1990, while the one national survey indicates a need for additional public education.

Comparing the apparent level of knowledge as reflected by this objective with the apparent practices as reported in the discussion of other objectives in this category shows that the U.S. population is more knowledgeable about what they need to do than their reported activity indicates. One area where there appears to be some misunderstanding and, if clarified, may result in better concordance of knowledge and practice, is the specific activities which are vigorous enough to require 60 percent VO_2 max given the age of the person doing the activity. Therefore, in the future the objective could be revised to incorporate the age of the person doing the activity.

Objective f.

By 1990, the proportion of primary care physicians who include a careful exercise history as part of their initial examination of new patients should be greater than 50 percent.

Baseline

Baseline data were unavailable.

Status

Forty-seven percent of primary care physicians in Massachusetts and Maryland reported in 1981 that they "routinely" ask patients about exercise behavior. An unpublished survey of Los Angeles residents provides some confirmation of these data because 46 percent of persons interviewed who had seen a physician for a physical examination or check-up in the past year stated that their physician had inquired about exercise habits. Unfortunately, it is impossible to know whether these data from physicians in Massachusetts and residents in Los Angeles represent national norms. (Wechsler H, Levine S, Idelson RK, Rohman M, Taylor JO. The physician's role in health promotion — a survey of primary-care practitioners. *New England Journal of Medicine* 1983; 308:97-100; Valente CM, Sobal J, Muncie HL, Levine DM, Antlity AM. Health Promotion: physicians' beliefs, attitudes and practices. *American Journal of Preventive Medicine 1986* (in press); UCLA-CDC Survey of Physical Activity Patterns in Los Angeles, 1984, Unpublished data.)

Comment

Based on very limited data available, it appears this objective may be achieved; assessment of progress will, of course, depend upon subsequent surveys.

The medical care setting is an important location for the promotion of physical activity. Available data suggest achievement of this objective may be close, but the goal may be more difficult to achieve than first thought. Even though 47 percent of Massachusetts primary care physicians reported that they routinely asked about exercise behavior, only 27 percent felt exercise was "very important" for the average person.

Progress toward achievement of this objective would be greatly assisted by development and dissemination of guidelines for a careful exercise history and in increased promotion of the value of exercise for health among the medical community. Professional development and training resources relating to wellness/fitness are currently being collected to develop a directory available to practitioners interested in upgrading their skills in the wellness/fitness area.

IMPROVEMENT OF SERVICES

Objective g.

By 1990, the proportion of employees of companies and institutions with more than 500 employees offering employer-sponsored fitness programs should be greater than 25 percent.

Baseline

In 1979, 2.5 percent of companies had formally organized fitness programs.

Status

In 1985, 32.44 percent of worksites with over 250 employees reported offering employer-sponsored fitness programs. (Office of Disease Prevention and Health Promotion)

Comment

Based on the latest national survey, it appears that this objective has already been met. This objective could be reworded, however, to improve its clarity. As it stands, it could mean that, by 1990, the proportion of employees of companies and institutions with more than 500 employees who are offered employer-sponsored fitness programs should be greater than 25 percent; or that, by 1990, the proportion of companies and institutions with more than 500 employees offering employer-sponsored fitness programs should be greater than 25 percent.

The problems associated with achieving the objective are linked to the multiple interpretations which can be ascribed to the objective, and the lack of adequate baseline data for comparison. If it is the intention to increase employee participation rates in companies with greater than 500 employees, the baseline data on current participation rates must be established. Currently these data do not exist in any usable form. The problems associated with meeting this interpretation of the objective are: 1) providing increased opportunities for employees to participate in fitness programs (i.e., making facilities available either at the worksite or through subsidizing club membership, etc.), 2) establishing a way for employees to participate in fitness programs in such a way that the normal course of business does not suffer, and 3) identifying motivational factors which promote employee participation in fitness programs (i.e. rewards, incentives, etc.).

If the intent of the objective is to establish a 25 percent national norm where companies of 500 or more employees have access to physical fitness facilities, then the problems in achieving the objective are somewhat different. Companies must be convinced that fitness programs are beneficial to them.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective h.

By 1990, a methodology for systematically assessing the physical fitness of children should be established with at least 70 percent of children and adolescents ages 10 to 17 participating in such an assessment.

Status

At least three tests of physical fitness of youth, including national norms, are available. No reliable estimates on the number of children participating in such a test are available. Sources of information on existing tests include:

American Alliance for Health, Physical Education, Recreation and Dance. *AAHPERD Youth Fitness Test Manual, 1976.* AAHPERD, Reston, Virginia.

American Alliance for Health, Physical Education, Recreation and Dance. *AAHPERD Health Related Physical Fitness Test Manual, 1980.* AAHPERD, Reston, Virginia.

Ross JG, Gilbert GG. A summary of findings. *JOPERD* 1985; 56: 45-50. Office of Disease Prevention and Health Promotion. U.S. Public Health Service. Department of Health and Human Services. Summary of findings from National Children and Youth Fitness Study (NCYFS), October 16, 1984.

Comment

Based on the current state of the art, it appears unlikely that a single system for assessing the physical fitness with the participation of 70 percent of children and adolescents ages 10 to 17 years will be achieved.

This objective encompasses two outcomes. One is the development of methods to assess the fitness of children. The other is to achieve widespread participation by children in the assessment.

Practical methods for assessing physical fitness as it relates to performance in life's regular activities, as well as to the health status of children are now available. Given the overall importance to health of adequate cardiovascular endurance, flexibility, muscular strength and endurance, and appropriate body composition, a periodic evaluation of the fitness levels of children is appropriate. The objective, however, should not be merely to assess the health related components of fitness on a regular basis but to establish levels of achievement that are both desirable and reasonable.

In order to estimate the level of fitness in the population, 70 percent participation in a survey is unnecessary. The second component of this objective, therefore, has a rather different goal. The goal is promoting widespread participation in physical activities in children and adolescents as measured in other objectives in the physical fitness and exercise category. Therefore, this part of the objective might be better placed in conjunction with those objectives. In addition, the intent of the objective needs clarification. Is the desired outcome the participation

in the fitness test, some level of achievement, or both? Assuming both are desired, a system to reward participation regardless of achievement seems appropriate.

Objective i.

By 1990, data should be available with which to evaluate short and long term health effects of participation in programs of appropriate physical activity.

Comment

Assessment of this objective is difficult due to its comprehensiveness. The effects of physical activity on several diseases of public health importance are summarized.

Cardiovascular Disease: A number of well designed and carefully analyzed observational studies have shown the incidence of coronary heart disease (CHD) to be approximately two-fold higher among sedentary men than among men who regularly participate in vigorous leisure-time or occupational physical activity. A careful review of the data strongly supports the conclusion that these effects are not attributable to the selection of a more active lifestyle by men who are healthier to begin with. None of the studies, however, used the definition of activity adopted for these objectives. Nevertheless, it seems prudent to believe that vigorous activity so defined (i.e., dynamic and rhythmic use of large muscle groups three or more times per week, 20 or more minutes per session, and at 60 percent or more VO_2 max) does reduce the risk of CHD. Several important questions remain, however. It is not known if the effects are mediated via cardiovascular fitness. More information is needed about the dose-response effect of physical activity on CHD, the effects on CHD of beginning a more active lifestyle in the middle or later years, and the factors that affect the risk of sudden death during exercise.

Hypertension: Cross sectional surveys and prospective studies limited in magnitude and design suggest that physical activity prevents the development and aids in the control of hypertension. The effect, if actually present, appears to be modest, i.e., only a few millimeters of mercury reduction in systolic pressure. Applied over the whole population, however, the effect on morbidity and mortality may be substantial.

Osteoporosis: Walking, running, and other weight bearing activity correlate with bone density. Data sufficient to estimate the magnitude of the expected reduction in osteoporosis related morbidity (e.g., hip fractures in the elderly) are not available.

Diabetes: Physical activity reduces blood glucose levels, increases insulin receptors, and increases the effect of insulin. A cross-sectional study of a population on a Pacific island noted a higher prevalence of diabetes among sedentary than among active populations; the association was independent of obesity. No other data are available with which to estimate whether habitual physical activity might prevent or postpone the development of noninsulin-dependent diabetes or its complications. Clinical observations suggest that physical activity improves glucose control in children with insulin-dependent diabetes mellitus. However, no data are available to estimate changes in the rate of the complication of diabetes.

Depression: Clinical depression is common with prevalence estimates ranging from 3-4 to 5-10 percent, about 15 percent of whom (or 20,000 per year) will die from suicide. The antidepressant effects of exercise are widely accepted, yet have been demonstrated in only two controlled studies. Data are not available with

which to estimate the benefits from improved function and lower incidence of depressive episodes among depressed patients.

Anxiety: No controlled studies have been done on patients with anxiety disorders. Among nonclinical populations, experimental studies of acute and chronic vigorous exercise have consistently shown a reduction in temporary anxiety states, less consistently a reduction in permanent anxiety traits, and improvements not necessarily better than other interventions such as meditation or eating. The data do not allow an estimate of the magnitude of these effects on morbidity or mortality.

Mental Retardation: Exercise has been reported to improve self concept, social skills, and behaviors associated with IQ measurement in mentally retarded individuals. The potentially associated reductions in medical costs have not been estimated.

Weight Control: Cross sectional surveys and clinical trials consistently support the observation that physical activity has a beneficial effect on weight control. Although the effect is firmly established, no estimates have been made concerning the benefits which accrue in terms of reduced morbidity and mortality.

Adverse Health Effects: Physical activity is associated with a variety of acute musculoskeletal injuries. However, virtually no data are available which would allow estimates for the incidence of adverse acute or chronic musculoskeletal, psychological, or metabolic effects to be developed. Conversely, the gains in muscular strength, muscular endurance, and flexibility associated with improved physical fitness may reduce injuries from certain physical activities at work and in recreation.

Objective j.

By 1990, data should be available to evaluate the effects of participation in programs of physical fitness on job performance and health care costs.

Comment

Several studies have been conducted to assess the effects of physical fitness on job performance and health care costs. These studies have been primarily conducted in Western Europe, Canada, and the USSR and look at improved employee attitudes, job satisfaction, general increase in productivity, reduced absenteeism and reduced health care costs. However, each of the studies suffers from important design problems limiting the strength of evidence and therefore confounding any conclusion of actual effect.

There is little agreement and comparability of measures for job performance and health care cost. There appears to be no standard operational definitions for what job performance should be, or, for that matter, what goes into the equation to figure costs of or cost savings from a fitness program. The job performance data have tended to be self reported satisfaction data while the cost data vary with a particular company's definition of fixed, real, or actual costs. The savings information is usually projected savings of health care costs given differences which appear to exist in health benefit utilization. These projected savings seem premature based on the data available, which usually comes from studies of a single company's worksite fitness participants and nonparticipants. Secular trends and personal predisposition have not been controlled for in these studies.

Progress toward achievement of this objective will require standardization of definitions of job performance and measures of health care costs, companies' willingness to share cost data with other agencies, and overcoming the difficulty in

teasing out the effect of worksite physical fitness programs from other contributors to fitness.

Objective k. By 1990, data should be available for regular monitoring of national trends and patterns of participation in physical activity, including participation in public recreation programs in community facilities.

Comment

National polls and data from selected population groups suggest that the amount of time spent by adults in vigorous leisure time activity has increased in the past 10 to 20 years. Unfortunately, the data do not allow a quantitative estimate of the increase. Furthermore, if a change has occurred, the data are insufficient to determine if all demographic groups have participated.

Most surveys of leisure time physical activity show that adults (18 years and older) commonly report the activities of walking, swimming, calisthenics, bicycling, and jogging or running. Variation in definition of participation precludes any assessment of national trends in the absolute or relative frequencies of these activities.

No information is available about participation in public recreation programs in community facilities.

Several surveys are underway or are firmly committed for implementation by 1990. They include:

1. National Health Interview Survey (NHIS): A health promotion supplement in 1985 included a set of exercise questions. These questions are expected to be repeated in a 1990 supplement. Advanced data from the 1985 survey estimated that 41 percent of the population exercise or play sports, 25 percent claiming to have exercised over a period of five or more years.
2. National Health and Nutrition Examination Survey (NHANES) III: Working groups are currently examining the feasibility and desirability of an improved set of exercise and fitness questions for the NHANES III in fiscal year 1988. Developmental work is underway to examine the feasibility of including selected tests of health related physical fitness.
3. CDC Behavioral Risk Factor Surveillance System (BRFSS): The BRFSS is an ongoing surveillance system. At the present time, 24 States are participating in the BRFSS to determine leisure time activity and other health related habits of adults.

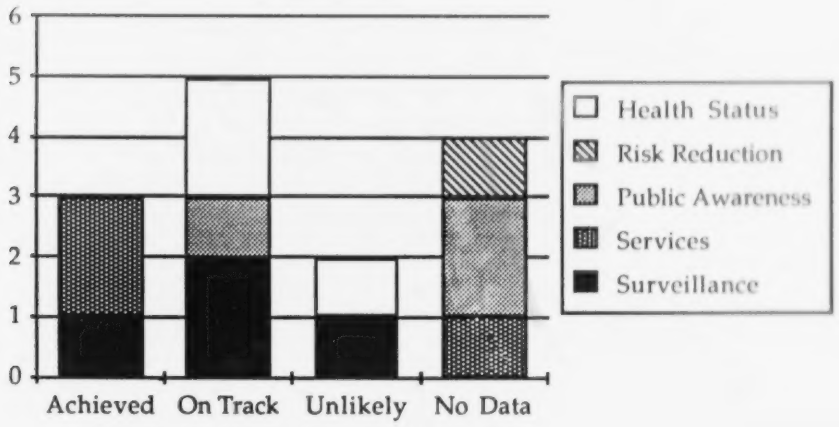
The NHIS supplement and the BRFSS survey will provide estimates of secular trends in leisure time physical activity in adults. In contrast, information about "participation in public recreation programs in community facilities" is not available and no known surveys are being planned. The concepts of public recreation programs and community facilities are sufficiently vague to preclude ready agreement about their meaning. Nevertheless, involvement by all levels of the community is essential for progress toward achievement of all of the objectives and for the health of the Nation. Therefore, evidence of community involvement and participation in this sphere is important. A new objective might be developed that emphasizes the importance of a community knowing the programs and facilities that are available to its citizens. The appropriate source of information will depend on the community and may be the department of health, department of parks and recreation, or some other department.

The major impediments toward the achievement of this objective are: 1) variable definitions of public recreation programs, community facilities, and participation, 2) the absence of a central surveillance system for such information, and 3) the lack of an obviously appropriate organization or agency to collect such data.

Section O CONTROL OF STRESS AND VIOLENT BEHAVIOR

Homicide is the leading cause of death for Black males ages 15 to 44. Suicide is the third leading cause of death among young people ages 15 to 24. Child abuse and other forms of intrafamily violence, while posing difficult problems of measurement, continue to threaten the physical and mental health of many thousands of Americans. For these reasons, an area which historically has been relegated to fields of law enforcement and social services is coming to the forefront as a public health concern. During 1985, the Surgeon General of the U.S. Public Health Service provided national leadership on the issue, pointing out that violence is indeed a leading public health problem in the United States. The objectives in this area show modest progress in addressing an area which clearly calls for preventive interventions that go beyond the usual array of public health approaches and involve the basic social fabric of the Nation.

Status of Control of Stress & Violent Behavior
(14 Objectives)



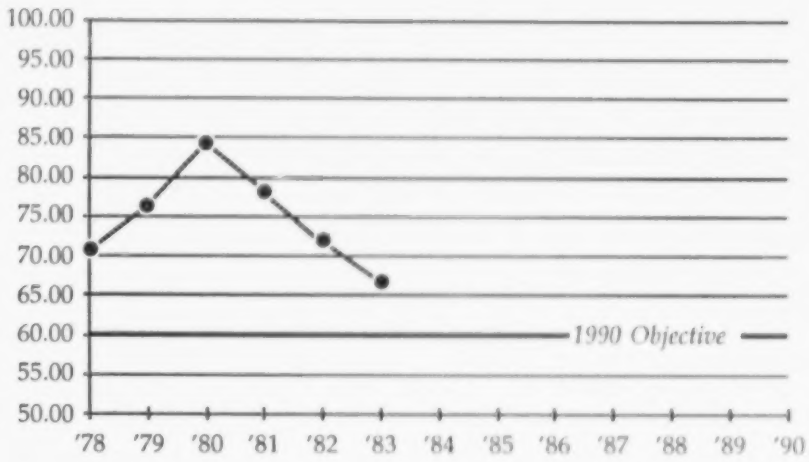
IMPROVEMENT OF HEALTH STATUS

Objective a. By 1990, the death rate from homicide among Black males ages 15 to 24 should be reduced to below 60 per 100,000.

Baseline In 1978, the death rate from homicide among Black males ages 15 to 24 was 72.5 per 100,000. (It should be noted that the baseline figure of 72.5 per 100,000 has since been revised by the NCHS to 70.7 per 100,000 based on 1980 census final data).

Status In 1983, the death rate from homicide among Black males ages 15 to 24 was 66.8 per 100,000. (NCHS)

Homicides Among Black Males (Rate Per 100,000 Black Males, Ages 15-24)



Source: National Center for Health Statistics

Comment Based on progress to date, it appears possible that this objective will be met by 1990. While increases in rates occurred until 1980, declines have occurred from 1980 to 1983, resulting in a death rate of 66.8 per 100,000 Black males ages 15 to 24. While progress has been made, death rates for homicide among Black males are far in excess of those of any other sector of the U.S. population. Homicide is the single most frequent cause of death for Black males ages 15 to 44. In contrast to the rate for Blacks, the homicide rate for young white males was 11.3 per 100,000 in 1983.

Most homicides among young Black males were committed with guns (71.1 percent of all homicides for 1976-1982); of those homicides committed with guns, 76.2 percent involved handguns.

The primary factor impeding progress towards achieving this objective is that currently there are no known means of effectively reducing homicide short of

drastic social measures, such as handgun confiscation, that would be acceptable to large segments of the U.S. population. Further research should not only result in improved understanding of specific risk factors for homicide, but should serve as the basis for improved prevention interventions by the health sector.

There are no proven effective means of reducing homicide rates within the general population. Further research into the specific risk factors involved in homicide rates for both Black and Hispanic males needs to be conducted. Studies of the presence, use of, and attitudes toward firearms and other lethal weapons in minority versus nonminority households could prove useful. Cultural differences between various ethnic, racial, and socioeconomic status groupings regarding the use of violence as a means of conflict resolution also need further study. Cross-cultural studies examining differences in the rates of violent behavior between countries (e.g., Japan versus the United States) might also prove to be useful and point toward possible prevention interventions. At the national, State and local level, the public should be made aware of the consequences and risks of violence, the steps which can be taken to reduce the risk, and the resources available for dealing with violence. Mechanisms should also be developed for coordinating the efforts of law enforcement, health and social service agencies to develop strategies to prevent homicide.

Objective b. By 1990, injuries and deaths to children inflicted by abusing parents should be reduced by at least 25 percent.

Baseline In 1978, the national incidence of child abuse was estimated to be in the 200,000 - 4,000,000 per year range.

Status In 1984, an estimated 1,726,649 children were subjects of reports of child abuse and neglect to child protective services agencies in the United States. Actual incidence was unknown, but was estimated to be in the range of two million to two and one-half million incidents per years. Though substantiation rates generally are about 40 percent of reported incidents, the 1980 National Study of the Incidence and Severity of Child Abuse and Neglect found that only one case of child maltreatment in every three had been reported to a child protective agency. (National Center on Child Abuse and Neglect, DHHS).

Comment Based on progress to date, it appears unlikely that this objective will be met. There continue to be major data collection factors impeding progress in tracking this objective. The 1984 study of official reports sponsored by the National Center on Child Abuse and Neglect (NCCAN) provides estimates of reports made to child protective agencies. These estimates indicate that in every year but one from 1976 to 1984, the number of reports has increased. In 1976, an estimated 669,000 cases were reported. In 1980, estimates rose to 1,154,000, and in 1984 the estimate was 1,727,000. One cannot assume, however, that the incidence has increased proportionately since improved reporting practices and systems may be responsible for some of the increase. On the other hand, the 1980 National Study of the Incidence of Severity of Child Abuse and Neglect found only one case of child maltreatment in every three to have been reported to a child protective agency.

Recently funded surveys will provide the needed data to track progress on this objective. NIMH funded a new national survey of family violence in 1985 that will yield new data on the number and severity of injuries inflicted on children by

abusing parents. Data are being collected from a nationally representative sample of 4,000 families with oversamples of Black and Hispanic families. NCCAN has recently financed a second study of the national incidence and prevalence of child abuse and neglect, including child sexual abuse, which also should yield improved data as well as information on trends in incidence and prevalence. NCCAN has also funded research in two cities and two States on deaths to children inflicted by parents and caretakers. A major objective of the research is to determine whether reports of child abuse preceded such deaths and whether different responses to such reports by medical, social service, and child protective agencies might have prevented such deaths.

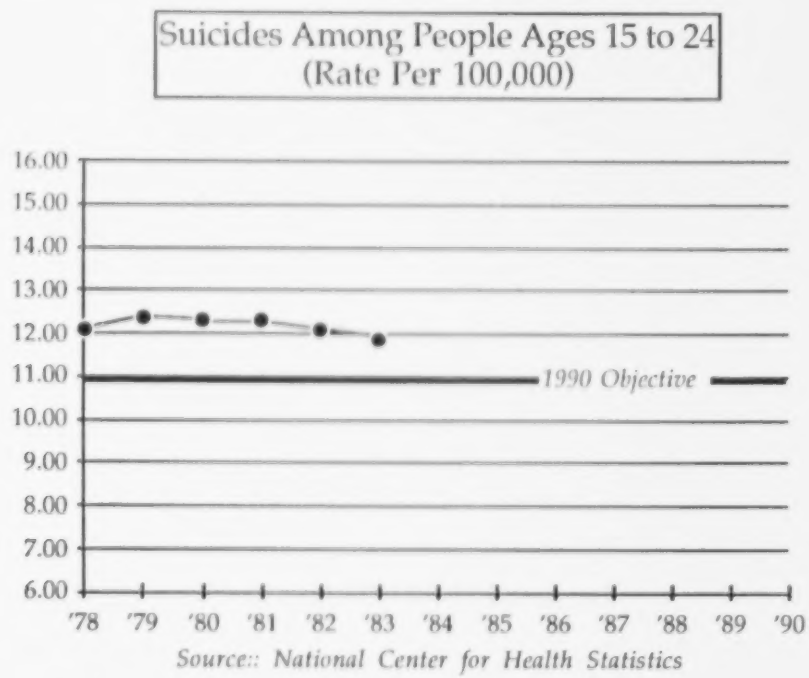
Even with the completion of the NIMH and NCCAN studies, rates sufficiently firm to serve as a basis for determining whether the 25 percent target figure was, is being, or will be met may not be generated. These studies should, at least, provide an empirical basis for determining whether the objective of a 25 percent reduction was realistic.

Practical measures to reduce the incidence of child abuse should involve improved responses by primary care providers to cases of known or suspected child abuse with high risk for serious injury or death.

Objective c. By 1990, the rate of suicide among people 15 to 24 should be below 11 per 100,000.

Baseline In 1978, the rate of suicide among people age 15 to 24 was 12.4 per 100,000. (The baseline rate was revised to 12.1 based on final 1980 census data).

Status In 1983, the rate of suicide among people age 15 to 24 was 11.9 per 100,000. For ages 15 to 19, it was 8.7 per 100,000 and for ages 20 to 24, it was 14.8.



Source:: National Center for Health Statistics

Comment

Based on progress to date, it appears that this objective may be met. However, the provisional rate computed for 1984 has been set at 12.2, which would be an increase over the 1983 figure of 11.9 per 100,000.

While overall youth suicide rates have been relatively stable since the baseline year of 1978, suicide rates for young Americans are now triple those of 30 years ago. The taking of one's own life has become the third leading cause of death among those ages 15 to 24. Persons age 20 to 24 have suicide rates and numbers twice as high as persons 15 to 19, but these rates are decreasing. White males accounted for 70 percent of all suicides in 1980, and more males are using guns to commit suicide. In the past, for women, the preferred method of suicide was poisoning or overdose; now it is guns.

Many areas are in need of research since relatively little is known about the factors that contribute to suicide in general and youth suicide in particular. Promising areas of research range from studies of biologic factors (e.g., level of serotonin in the blood) to psychosocial factors (e.g., impulsive and aggressive behavior). Also, the misuse of alcohol and other drugs relative to suicidal behavior should be a major research priority. Additional study of "suicide clusters" in the 15 to 19 age group and the possible "contagion" effect of adolescent suicide is another high-priority research area.

The Secretary of DHHS has recently formed the Secretary's Task Force on Youth Suicide and charged it with the responsibility for coordinating suicide activities among various Federal agencies, Congress, State and local governments, private agencies, and professional organizations. Its major functions are to assess and consolidate information to provide a forum of communication with health professionals, educators, parents, and families; and to recommend and initiate activities to address the problem.

In formulating a new version of the objective, it would be helpful to create one for each of the age groups, 15 to 19 and 20 to 24, so that more specific target rates could be developed.

RISK REDUCTION

Objective d.

By 1990, the number of handguns in private ownership should have declined by 25 percent.

Baseline

In 1978, the total number of handguns in private ownership was estimated to be 30 to 40 million.

Status

In 1985, no reliable data or estimates were available.

Comment

Because needed tracking data are unavailable, progress towards meeting this objective cannot be measured. Data collected by the Bureau of Alcohol, Tobacco and Firearms on annual manufactures and importations of handguns into the United States (about two million each year) suggest that the number of handguns in private ownership has increased since 1978. Public policies with respect to manu-

facture, importation, sales, and ownership of handguns are established by the political system at Federal, State, and local levels. In the absence of major changes in existing policies, it is unlikely that the number of firearms in private ownership will decrease.

PUBLIC AND PROFESSIONAL AWARENESS

Objective e. By 1990, the proportion of the population over the age of 15 which can identify an appropriate community agency to assist in coping with a stressful situation should be greater than 50 percent.

Baseline Baseline data were not available.

Status In 1985, while data relating to individuals ages 15 to 17 were not available, a recent survey indicated that people age 18 and over could identify the following community agencies to assist them in dealing with a stressful situation: emergency medical centers (66 percent), community mental health agencies (58 percent), child abuse services (52 percent), and crisis hotlines or help centers (43 percent). ("A Study of the Sources, Correlates, and Manifestations of Perceived and Experienced Stress in the United States," Office of Disease Prevention and Health Promotion, unpublished study, 1985.)

Comment Based on surrogate data, it appears likely that this objective will be met. Though data on 15 to 17 year old individuals are not available, more than fifty percent of those 18 and over can identify appropriate community agencies to help them cope with a stressful situation.

Achievement of this objective is dependent on a sustained level of community awareness to facilitate individual decisions about resources within the community that are available and can provide services to people under various forms of stress.

Objective f. By 1990, the proportion of young people ages 15 to 24 who can identify an accessible suicide prevention "hotline" should be greater than 60 percent.

Baseline Baseline data were not available.

Status No current data are available.

Comment Because baseline and current data are not available, it is impossible to predict whether this objective will be met. Proxy data were reported in "A Study of the Sources, Correlates, and Manifestations of Perceived and Experienced Stress in the United States" (1985). Of the respondents age 18 and over, 40 percent indicat-

ed that they know of a suicide prevention hotline in their community. For those ages 18 to 29, 41 percent could identify this service as available. However, these data do not include young people ages 15 to 17 and also do not provide specific data for the 15 to 24 age group. Since suicide is the third leading cause of death among this age group, data to track the objective are needed. Additional research should be carefully conducted since the effectiveness of suicide prevention "hotlines" has not been fully investigated.

Objective g. By 1990, the proportion of the primary care physicians who take a careful history related to personal stress and psychological coping skills should be greater than 60 percent.

Baseline Data were not available.

Status Data on current status are not available.

Comment Based on unavailability of baseline data, it is impossible to predict whether this objective will be met. Although no national data are available on this aspect of the practice activities of physicians, a survey of primary care physicians in Massachusetts indicated that less than 50 percent of the respondents asked their patients about stress, only 29 percent felt "very prepared" to discuss stress, and nearly 50 percent wanted courses related to stress. Accordingly, significant private sector groups (e.g., medical associations, medical school officials) are becoming involved in a cooperative strategy to address this priority objective.

IMPROVEMENT OF SERVICES

Objective h. By 1990, to reduce the gap in mental health services, the number of persons reached by mutual support or self-help groups should double from 1978 baseline figures.

Baseline In 1978, 2.5 to 5 million were reached by mutual support or self- help groups, depending on the definition of such groups.

Status In 1984, 12 to 14 million persons were reached by these groups.

Comment Based on progress to date, the objective has already been met. Participation in mutual help groups has grown at a rapid rate since 1978. Changes in cultural norms in favor of participation in such groups such as Alcoholics Anonymous and Al-Anon have played a key role in the achievement of this objective.

"A Study of the Sources, Correlates, and Manifestations of Perceived and Experienced Stress in the United States" provides data of relevance to this objective

(Office of Disease Prevention and Health Promotion, 1985). Of those sampled in the study, five percent had participated in a self-help group in the past year, and three percent were currently participating.

Mutual support and/or self-help groups are generally thought to be useful by participants, clinicians, and advocates because they provide socioemotional support which permits stressful experiences to be shared with persons in like circumstances. Group members become informed about some practical techniques successfully used by others in coping with their problems. In addition, mutual help groups may be the only available source of long-term, intensive support required to deal with some life problems because they replace the fee-for-service with a mutual exchange of services.

Some studies are beginning to collect data on the efficacy of such groups, but much remains to be done. An improved understanding of the characteristics of the members most likely to be helped and the structure of effective mutual help groups is needed. In short, the role played by mutual help groups in the continuum of mental health care needs explication.

Regular monitoring of progress relating to this objective should continue through 1990. The assessment of progress, however, should be based on precise definitions of both "mutual support" and "self-help" groups.

Objective i. By 1990, stress identification and control should become integral components of the continuum of health services offered by organized health programs.

Baseline Baseline data were not available.

Status Current data are unavailable.

Comment Since baseline and current data are unavailable, it is not possible to predict whether this objective will be met. Because of potential linkage between stress and disease as well as violence, the objective is significant. A number of small, localized studies have been carried out to ascertain whether primary providers include questions about stress in taking histories, but to date there are no national efforts to have stress identification and referral integrated into clinical practice.

Objective j. By 1990, of the 500 largest U.S. firms, the proportion offering work-based stress reduction programs should be greater than 30 percent.

Baseline Baseline data were not available.

Status A 1985 survey of 86 worksites with 750 or more employees revealed that 51 percent of those firms have stress reduction programs. See the chart below for the prevalence of programs at worksites with smaller numbers of employees. (Office of Disease Prevention and Health Promotion)

Prevalence of Health Promotion Programs by Worksite Size

Worksite Size	Number	Stress
0-49	220	7.1%
50-99	439	11.0%
100-249	391	23.7%
250-745	170	31.3%
750 +	86	51.0%

Comment

Based on a recent survey, it appears that this objective has been met. Since the term "500 largest U.S. firms" has not been defined either as number of employees or financial resources, it is unknown whether the survey data directly address this objective. However, of 170 worksites with 250-745 employees, 31.3 percent have stress reduction programs, and of 86 worksites with 750 or more employees, 51.0 percent have such programs.

IMPROVEMENT OF SURVEILLANCE AND EVALUATION

Objective k.

By 1985, surveys should show what percentage of the U.S. population perceives stress as adversely affecting health, and what proportion is trying to use appropriate stress control techniques.

Baseline

Baseline data were not available.

Status

In 1985, 17 percent of the population perceived that stress adversely affected their health according to "A Study of the Sources, Correlates, and Manifestations of Perceived and Experienced Stress in the United States" (The Stress Study). The provisional data from the 1985 National Health Interview Survey (NHIS) conducted by the National Center for Health Statistics (NCHS) indicated that 13 percent of the population felt that stress has considerable effect on their health and 31 percent said stress has had some effect on their health. A survey conducted in 1985 by Louis Harris and Associates, Inc. for *Prevention Index 1986* reported that 69 percent of the population undertook specific steps to control stress, including getting enough sleep, regularly socializing with others, activity in community groups, and exercise as well as less frequently used measures such as therapy, meditation, time mangement procedures and deep breathing exercises.

Comment

Based on progress to date, it appears that this ojective has been met.

An initial answer to the first part of the objective has been gained through the recent federally supported national survey of perceived stress. These results, however, should be treated with caution and regarded as a tentative answer to the objective. Stress was not defined in the study, and the respondents answered the questions based on their understanding of the term. The 1985 National Health

Interview Survey (NHIS) included questions of direct relevance to this objective, and showed the degree to which people thought stress adversely influenced their health.

In the Stress Study, and the NHIS, all the respondents were asked whether they were trying to use appropriate stress control techniques. Responses were obtained for the overall sample, not just those respondents who reported experiencing stress. Further data analysis (and perhaps retrieval) will be required in order to respond to this part of the objective. Additional work should be done to develop a clear, uniformly applied definition of "appropriate stress control techniques." The privately supported survey of persons reporting that they use certain steps to control stress, published in the annual *Prevention Index* (Rodale Press), has shown an increase in this number between 1983 and 1985.

Objective l. By 1985, a methodology should have been developed to rate the environmental stress loads of major categories of occupations.

Baseline No methodology existed in 1979.

Comment A methodology was not developed by 1985; however, one is being developed in 1986 by the National Institute of Occupational Safety and Health (CDC). Thus, the objective will be met before 1990.

Objective m. By 1990, the existing knowledge base about stress effects and stress management should be greatly improved through scientific inquiry.

Comment Although this objective is not quantifiably measurable, it apppears likely that it will be achieved. Significant gains have occurred in expanding the knowledge base about stress effects and stress management. More than 100 NIMH research grants have been awarded in the past two and one-half years to examine various aspects of stress and stress management.

Much remains to be learned about the effects of stress and its management. The single most important obstacle in the way of achieving greater understanding of stress and its management is lack of a coherent conceptual framework for designing research, gathering data, and interpreting results. The 1985 study clearly demonstrates that people with various backgrounds have widely disparate notions of what stress is, how it affects them, and what, if anything, needs to be done to manage it more effectively.

Advances toward further expanding our knowledge base will depend on the development, testing, and refinement of a coherent conceptual framework for conducting more sophisticated research on stress including its causes, effects, and the effectiveness of various means used to control or reduce its negative effects. Longitudinal studies, in particular, are needed to measure both the health consequences of stress and the relative effectiveness of various stress control techniques.

Objective n.

By 1990, the reliability of data on the incidence and prevalence of child abuse and other forms of family violence should be generally increased.

Baseline

Until 1976, no attempt had been made to conduct a national study of the incidence and prevalence of child abuse and family violence.

Status

In 1985, the objective is being accomplished. The 1976 National Family Violence Survey and the 1980 National Study of the Incidence and Severity of Child Abuse and Neglect provided the first set of National baseline data on child maltreatment. No such data for other forms of family violence currently exist, but follow-up studies are underway.

Comment

Based on progress to date, it appears that this objective will be met. Effective action to prevent and reduce child abuse and other forms of violence requires accurate national data on the incidence and prevalence of these problems. Steps have been taken to acquire these data. NIMH awarded a research grant in 1985 for a second National Family Violence Survey that uses a representative national sample with Black and Hispanic oversamples. Data from this survey will greatly increase and expand the available body of accurate (i.e., reliable and valid) data on family violence. The survey will provide the first major body of accurate national data on family violence among Blacks and Hispanics. The National Center on Child Abuse and Neglect (NCCAN) awarded funds in 1985 for a second national survey on the incidence and prevalence of child abuse and neglect, including child sexual abuse. This survey will further increase the available body of accurate data on these problems. The 1985 survey can then be compared to the 1980 NCCAN study to improve the reliability and validity of both instruments and to chart trends in prevalence and incidence rates.

To improve this objective, it has been recommended that the word "validity" be added since the major research challenge is to obtain a valid understanding of and an accurate count of these behaviors. Work should also continue on identifying and verifying the risk factors involved in child abuse, spouse abuse and other forms of family violence. This work would assist in the development of preventive interventions more directly targeted to the factors most salient to such violent behavior.

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